TULANE ENVIRONMENTAL LAW CLINIC

May 3, 2017

Samuel Coleman, P.E., Acting Regional Administrator
U.S. EPA REGION 6
1445 Ross Avenue, Suite 1200
Mail Code: 6RA
Dallas, TX 75202-2733

Re: Georgia-Pacific, LLC Crossett Paper Operations, Draft NPDES Permit # AR0001210

Dear Mr. Coleman:

On behalf of the Ouachita Riverkeeper[1] and Louisiana Environmental Action Network ("LEAN"),[2] we urge EPA Region 6 to assert its authority under 33 U.S.C. § 402(d)(2) and object to the draft National Pollutant Discharge Elimination System ("NPDES") Permit No. AR0001210 ("Draft Permit") that the Arkansas Department of Environmental Quality proposes to issue to Georgia-Pacific, LLC.

Summary

Under 33 U.S.C. § 402(d)(2), "No permit shall issue . . . if the Administrator within ninety days of the date of transmittal of the proposed permit by the State objects in writing to the issuance of such permit as being outside the guidelines and requirements of this chapter." ADEQ submitted the Draft Permit for review by EPA Region 6 under 33 U.S.C. § 402(d)(1) on February 6, 2017. EPA's 90-day review period ends on May 7, 2017. EPA should object to the Draft Permit because it violates Clean Water Act standards and requirements because the permit misidentifies external outfalls—i.e., the points at which Georgia-Pacific and the City of Crossett discharge to Coffee Creek. The Draft Permit includes one external outfall for all discharges. That outfall is located at least four miles below the discharge point for Georgia-Pacific and almost two miles downstream of the City's discharges. Instead of recognizing that Coffee Creek is a water of

[1] Ouachita Riverkeeper is a non-profit corporation in Arkansas and Louisiana. It is comprised of citizens in Arkansas and Louisiana concerned about the quality and use of the Ouachita River and its tributaries. Ouachita Riverkeeper's purpose is to ensure that the people who use the Ouachita River enjoy a clean and safe environment and protect that environment for future generations. Ouachita Riverkeeper has members who live, work, or recreate around the Ouachita River in both Arkansas and Louisiana.

[2] LEAN is a non-profit corporation organized under the laws of the State of Louisiana. LEAN serves as an umbrella organization for environmental and citizen groups. LEAN's purpose includes preserving and protecting the state's land, air, water, and other natural resources and protecting its members and other residents of the state from threats caused by pollution. LEAN has an interest in protecting the Ouachita River, which flows into Louisiana several miles downstream of Crossett, Arkansas.

the United States and subject to Clean Water Act jurisdiction, the Draft Permit ignores that the upper segment of the creek exists and allows Georgia-Pacific and the City to use the creek to treat and transport their discharges. This scheme violates Clean Water Act guidelines and requirements for the following reasons:

1. The Draft Permit fails to apply end-of-pipe technology-based effluent limits and monitoring requirements at the point where Georgia-Pacific discharges its wastewater from its paper mill and related operations to Coffee Creek. *See* 40 C.F.R. § 125.3(e) ("Technology-based treatment requirements are applied prior to or at the point of discharge."); 40 C.F.R. § 125.3(f) ("Technology-based treatment requirements cannot be satisfied through the use of 'non-treatment' techniques such as flow augmentation [e.g., dilution] and in-stream mechanical aerators."); 40 C.F.R. § 122.48 (requiring monitoring "sufficient to yield data which are representative of the monitored activity"); 40 C.F.R. § 122.41(j) ("Samples and measurements … shall be representative of the monitored activity").

2. The Draft Permit fails to apply end-of-pipe technology-based effluent limits and requirements at the point where the City discharges its municipal wastewater to Coffee Creek. *See* 40 C.F.R. § 125.3(e) ("Technology-based treatment requirements are applied prior to or at the point of discharge."); 40 C.F.R. § 125.3(f) ("Technology-based treatment requirements cannot be satisfied through the use of 'non-treatment' techniques such as flow augmentation [e.g., dilution] and in-stream mechanical aerators."); 40 C.F.R. § 122.48 (requiring monitoring "sufficient to yield data which are representative of the monitored activity"); 40 C.F.R. § 122.41(j) ("Samples and measurements … shall be representative of the monitored activity").

3. The Draft Permit fails to require whole effluent toxicity sampling and testing of Georgia-Pacific's and the City's effluent at their separate points of discharge to Coffee Creek.

Ouachita Riverkeeper and LEAN demonstrated that Georgia-Pacific's permit does not meet Clean Water Act standards in the Riverkeeper and LEAN's April 26, 2016 Complaint to EPA under Title VI of the Civil Rights Act of 1964 against the Arkansas Department of Environmental Quality[3] and in supplemental information submitted on November 3, 2016 supporting that Title VI complaint.[4] EPA has accepted the Title VI complaint for investigation. *See* EPA File No. 27R-16-R6. While the Title VI complaint addresses Georgia-Pacific's current NPDES permit issued November 1, 2010, the deficiencies remain in the Draft Permit.

[3] http://www.tulane.edu/~telc/assets/petitions/4-26-16_%20Environmental_Justice_%20Petition%20-%20Georgia-Pacific_NPDES_Permit.pdf

[4] http://www.tulane.edu/~telc/assets/petitions/11-3-16_Resp_to_GP_Ltr_re_EJ%20Pet_Crossett.pdf

Legal Framework

The objective of the Clean Water Act is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). The Act's primary target is pollution from point sources, defined as "any discernable, confined and discrete conveyance . . . from which pollutants are or may be discharged." 33 U.S.C. § 1362(14); *see also* 40 C.F.R. § 122.2. The Act, 33 U.S.C. § 1311(a), prohibits the "discharge of any pollutant" from a point source to waters of the United States except in compliance with, among other conditions, an NPDES permit issued pursuant to 33 U.S.C. § 1342; *see also* 40 C.F.R. § 122(b)(1) ("The NPDES program requires permits for the discharge of 'pollutants' from any 'point source' into 'waters of the United States.'"). A "discharge of a pollutant" occurs where there is "any addition of any pollutant to navigable waters from any point source." 33 U.S.C. § 1362(12); 40 C.F.R. § 122.2 (defining "discharge of a pollutant" as "[a]ny addition of any 'pollutant' or combination of pollutants to 'waters of the United States' from any 'point source[]'").

The NPDES program relies on a system of "effluent limitations," which, among other things, restrict the quantities, rates, and concentrations of pollutants a person can legally discharge from point sources into waterbodies. 33 U.S.C. § 1311. "Effluent limitations established pursuant to [section 301 of the Clean Water Act] . . . shall be applied to all point sources of discharges of pollutants in accordance with the provisions of the [Clean Water Act.]" 33 U.S.C. § 1311(e). With limited exceptions that do not apply here, effluent limitations apply at the point of discharge into navigable waters. *See* 40 C.F.R. § 122.45(a) (All permit effluent limitations, standards and prohibitions shall be established for each outfall or discharge point of the permitted facility, except as otherwise provided under § 122.44(k) (BMPs where limitations are infeasible) and paragraph (i) of this section (limitations on internal waste streams)."). In other words, effluent limitations are "end-of-pipe" limitations.

NPDES permits must incorporate applicable technology-based effluent limitations guidelines that EPA promulgated on a nationwide industry-by-industry basis. 33 U.S.C. §§ 1311(b), 1314(b). Technology-based treatment effluent standards are "the minimum level of control that must be imposed in a permit issued under section 402" of the Clean Water Act. 40 C.F.R. § 125.3(a); *see also* 40 C.F.R. § 122.44(a)(1) (requiring "each NPDES permit" to include "[t]echnology-based effluent limitations and standards based on: effluent limitations and standards promulgated under section 301 of the CWA"). "Technology-based treatment requirements are applied prior to or at the point of discharge." 40 C.F.R. § 125.3(e). Technology-based treatment requirements cannot be satisfied with "non-treatment" techniques such as flow augmentation [i.e., dilution] and in-stream mechanical aerators. 40 C.F.R. § 125.3(f).

NPDES permits also require limits "necessary to meet [state] water quality standards." 33 U.S.C. § 1311(b)(1)(C); *see also* 40 C.F.R. § 122.44(d)(1) and (5). Limitations in a NPDES permit "must control all pollutants . . . which the [state NPDES program] Director determines are or may be discharged at a level which will . . . contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." 40 C.F.R. § 122.44(d)(1)(i).

Detailed Comments

I. Georgia-Pacific and the City use Coffee Creek to transport and treat their wastewaters.

Coffee Creek begins at the Georgia-Pacific plant and flows for several miles as an integral part of Georgia-Pacific's wastewater treatment system before Outfall 001—i.e., the point where the Draft Permit identifies the discharges to Coffee Creek.

Barry Sulkin, an environmental scientist and wastewater treatment expert, describes the path of Coffee Creek from its headwaters to its confluence with the Ouachita River, along with Georgia-Pacific's use of the creek to treat and transport its wastewater. Nov. 3, 2016 Affidavit of Barry W. Sulkin, M.S.[5] at ¶¶ 17-32, Ex. A. Mr. Sulkin bases his opinion on his field inspections, U.S. Geological Survey maps, satellite images, a 1984 Use Attainability Analysis of Coffee Creek-Mossy Lake, and statements made by the former owner of the Georgia-Pacific facility. *Id.*

To summarize, the headwaters of Coffee Creek begin northeast of Hancock Road and Hwy 82 (i.e., within the Georgia-Pacific facility) in Crossett, Arkansas. *Id.* at ¶¶ 17-18. The creek flows south from its headwaters under Hancock Road and Highway 82 before merging with a tributary from the east and flowing through Mill Pond, a dammed, aerated portion of Coffee Creek (which the permit refers to as the "aeration basis"). *Id.* at ¶¶ 19-21. After exiting Mill Pond, Coffee Creek flows approximately another 6 miles to and through Mossy Lake, before it forms as a creek again and ultimately joins the Ouachita River approximately one mile upstream of the Arkansas-Louisiana border. *Id* at ¶ 21; *see also id.* at ¶¶ 24-26 (detailing the path of Coffee Creek and providing maps and aerial images for support). The total length of Coffee Creek is approximately 15.8 miles. *Id.* at ¶ 22. (For purposes of this letter, the portion of Coffee Creek from and including Mill Pond to its headwaters is referred to as the "upper portion of Coffee Creek.")

Georgia-Pacific discharges a maximum of 84.5 million gallons a day of industrial wastewater, with an average of 38 million gallons a day, from its mill and related operations in Crossett, Arkansas. GP NPDES Permit Application, Form 1, May 4, 2015, p. 10. The discharges come from three points, identified as P1, P2, P3. *Id.* P1 discharges wastewater from pulp and paper processes, P2 discharges wastewater from pulp, paper and recovery processes, and P3 discharges wastewater from chemical, plywood, stud mill, utilities, and bleach processes. *Id.* As detailed in Mr. Sulkin's affidavit at ¶¶ 27-32 and as shown in the evidence discussed below, Georgia-Pacific discharges these wastewaters to Coffee Creek near its plant, several miles upstream of Outfall 001, and it uses the creek to transport and treat its wastes. The City of

[5] Ouachita Riverkeeper and LEAN submitted this affidavit to EPA on November 3, 2016 to supplement their Title VI complaint and rebut Georgia-Pacific's claims).

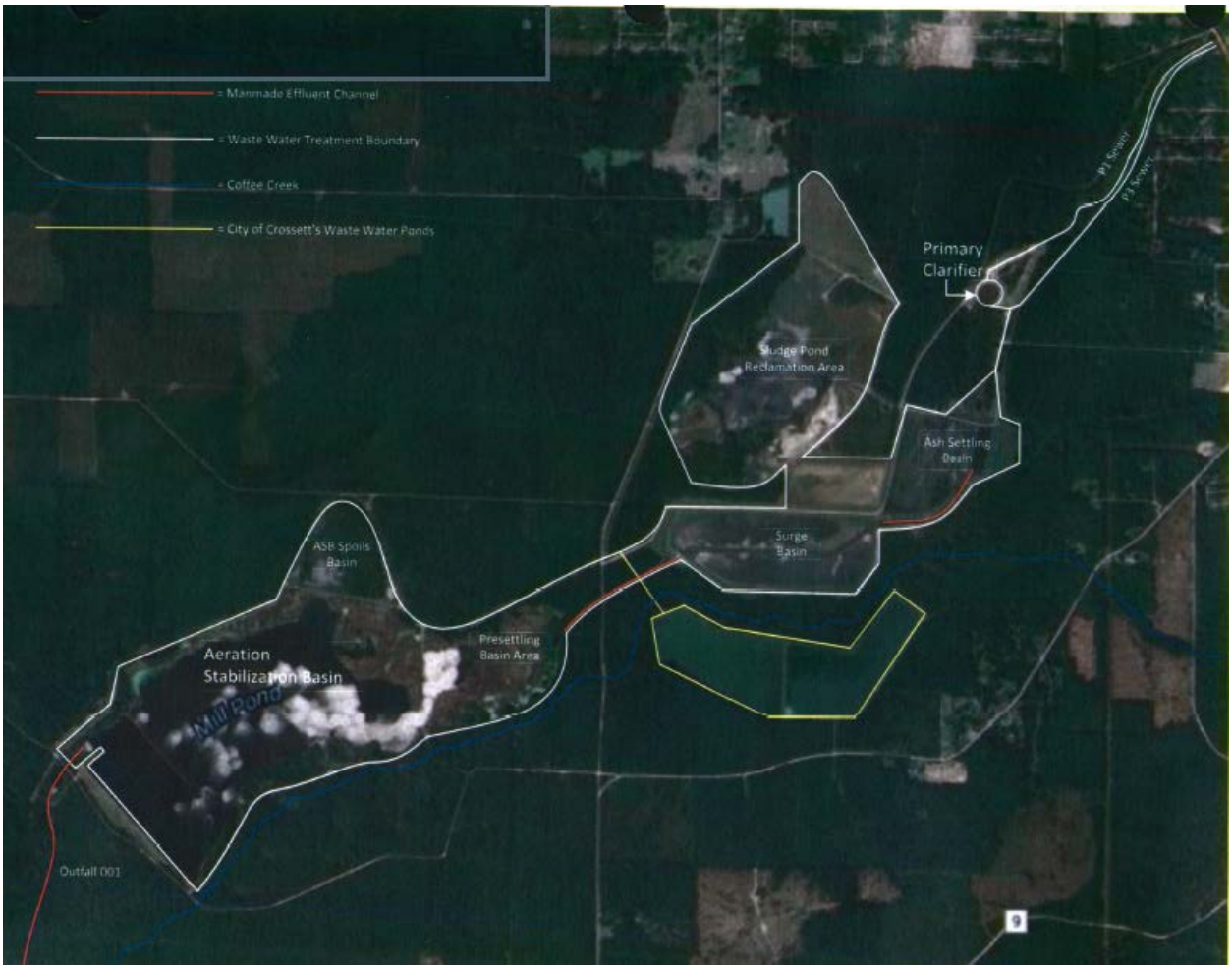
Crossett discharges its wastewater (average flow is 1 million gallons a day[6]) to Coffee Creek "downstream of the surge basin," which is just above Mill Pond, and likewise uses the creek to treat and transport its wastes. GP NPDES Permit Application, pdf p. 102; *see also id.* at pdf. 116 (map showing City's discharges).

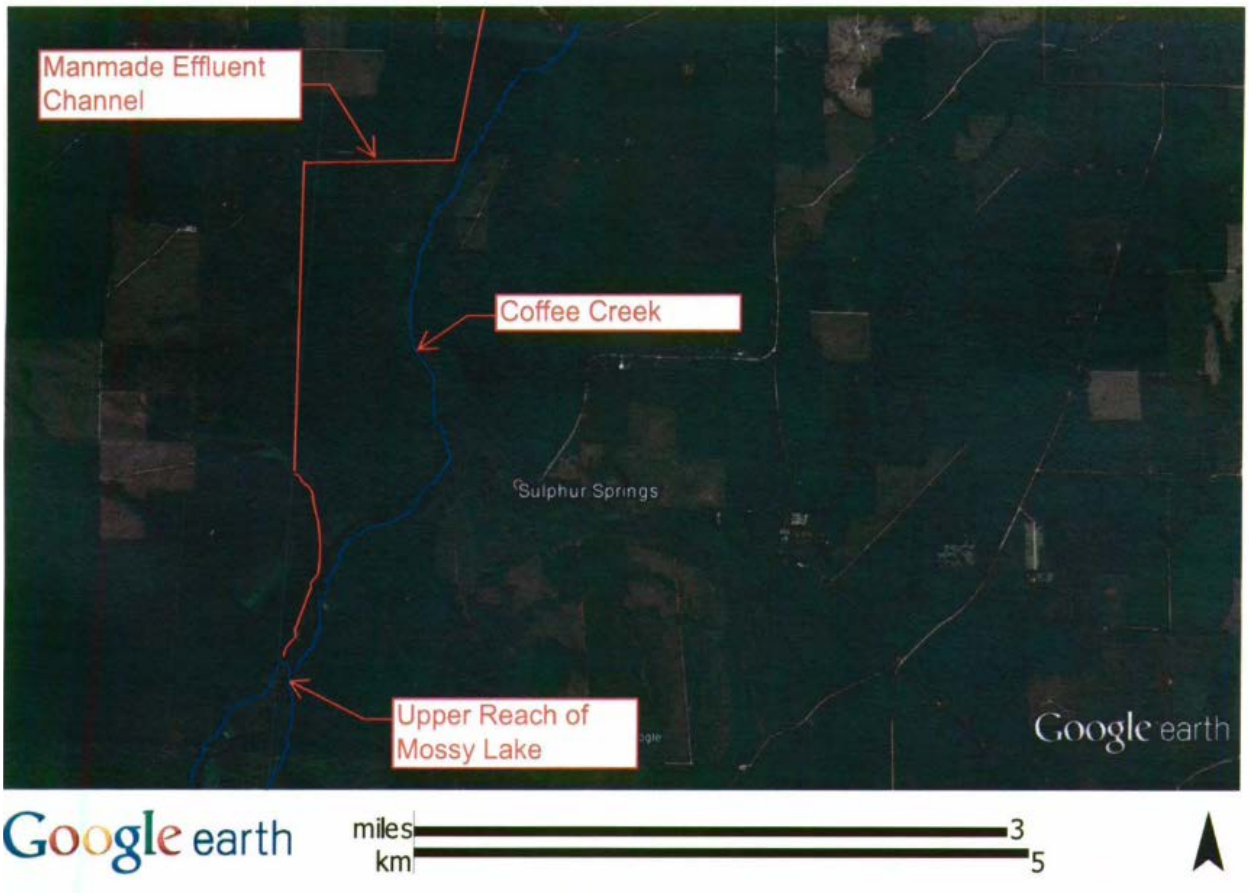
Georgia-Pacific considers the upper portion of Coffee Creek to be part of its wastewater treatment system. It does not acknowledge that the creek exists there. Georgia-Pacific describes its current wastewater treatment system as follows: "Primary treatment by clarifier and settling basins. Equalization by a surge basin. Chemical additions for odor control and nutrients. Biological treatment by an aerated stabilization basin (ASB) and Polishing Pond (Mossy Lake)." GP NPDES Permit Application, Form 1, p. 4, pdf p. 9; Waste Water Treatment Schematic, pdf. 109. Georgia-Pacific labels areas of its wastewater treatment system on the two aerial maps copied and pasted below from its application. *Id.* at pdf pp. 116-117. The Draft Permit, which is consistent with Georgia-Pacific's application (except that it does not include Mossy Lake), describes treatment of wastewater as follows:

> screening followed by primary clarifier, settling for ash removal, equalization, aerated lagoon with solids settling, sludge dewatering, chemical addition (hydrogen peroxide and iron catalyst) for odor control at the P2 sewer and the Chemical Plant as well as after screening but before the primary clarifier, and chemical addition of Iron salts at the aerated lagoon for reduction of sub-lethal activity

Draft Permit, Fact Sheet, p. 8.

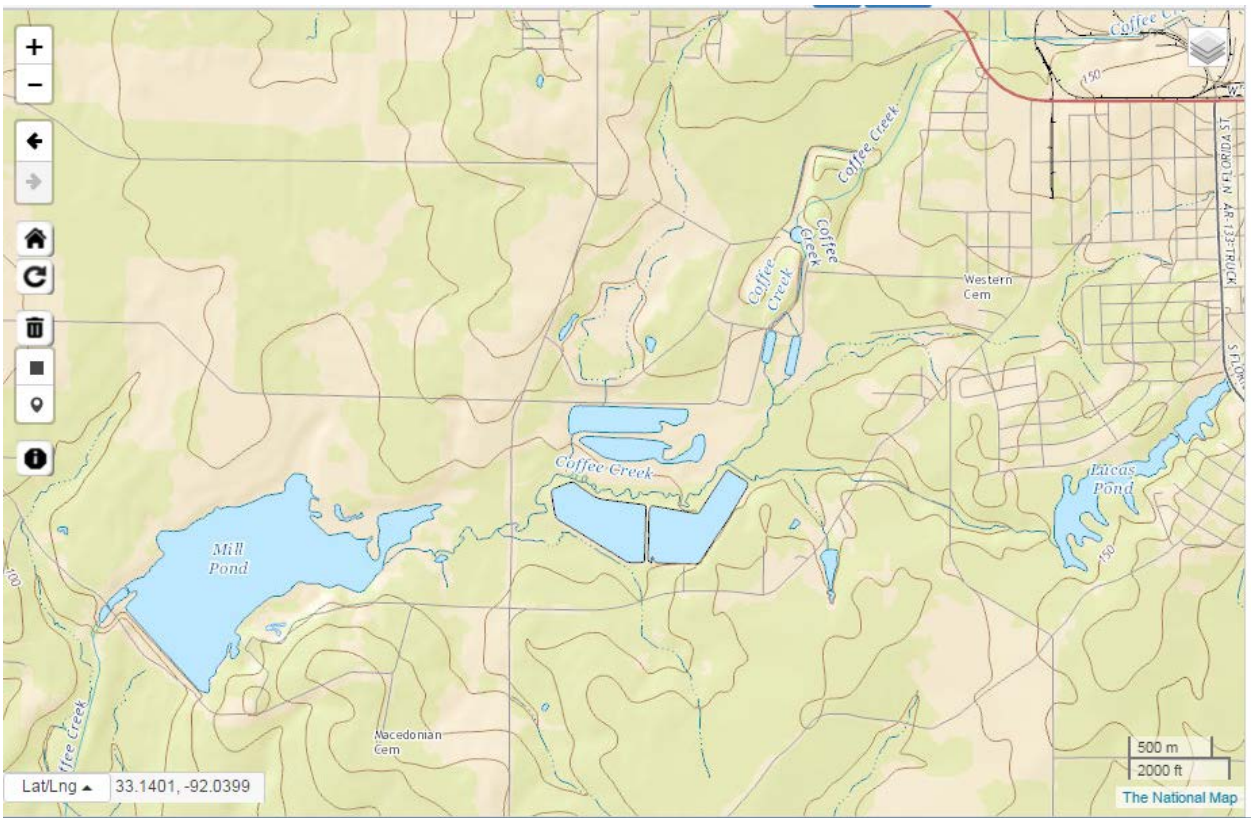
[6] GP NPDES Permit Application, EPA NPDES Form, pdf p. 59, https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0001210_Complete%20Renewal%20Application_20150513.PDF.


= Manmade Effluent Channel
= Waste Water Treatment Boundary
= Coffee Creek
= City of Crossett's Waste Water Ponds
Primary Clarifier
Sludge Pond Reclamation Area
Ash Settling Basin
Surge Basin
ASB Spoils Basin
Presettling Basin Area
Aeration Stabilization Basin
Mill Pond
Outfall 001



The image below (copied and pasted from a USGS map viewer program)[7] shows that the clarifier, settling and basin, and aeration basin are all in Coffee Creek.

[7] https://viewer.nationalmap.gov/basic/



See also Sulkin Aff., Attachment 2 (showing full image of topo map shown above).

Consistent with Mr. Sulkin's affidavit, a 2003 report prepared for EPA titled *Water Quality Assessment for the Ouachita River Between Felsenthal Reservoir Lock and Dam, Arkansas and Sterlington, Louisiana*[8] describes how Georgia-Pacific uses Coffee Creek for its wastewater treatment system:

> The G-P plant has used Coffee Creek and Mossy Lake as a wastewater treatment system since 1937. Coffee Creek has been substantially modified over the years to transfer and treat the wastewater. G-P discharges approximately 45 million gallons a day (MGD) from its plant site to upper reaches of a modified Coffee Creek. The wastewater then flows into a manmade canal and then to a primary treatment system, which removes heavy solids. The primary treatment system consists of one or more clarifiers, which discharges sediment to a settling basin. The discharge from the settling basin enters Coffee Creek and travels approximately 1.5 miles to an on-channel 625 million gallon aerated lagoon [Mill

[8]The report is available on the Internet: https://www.adeq.state.ar.us/downloads/webdatabases/permitsonline/npdes/permitinformation/ar0050296_water%20quality%20assessment%20for%20the%20ouchita%20river%20between%20felsenthal%20reservoir%20lock%20and%20dam,%20arkansas%20and%20sterlington,%20louisiana_20070228.pdf

> Pond]. . . . G-P's first permit monitoring point, Outfall 001, is located at the cascade discharge of the aerated lagoon.
>
> Prior to discharge, the effluent is treated by screening, primary clarification, settling, and stabilization in an aerated basin. The aerated basin discharges via Outfall 001 to Coffee Creek, which flows into Mossy Lake. Coffee Creek and Mossy Lake provide some measure of dilution and effluent polishing by natural degradation processes and are considered to be part of G-P's treatment processes. Mossy Lake discharges to the Ouachita River through Outfall 002

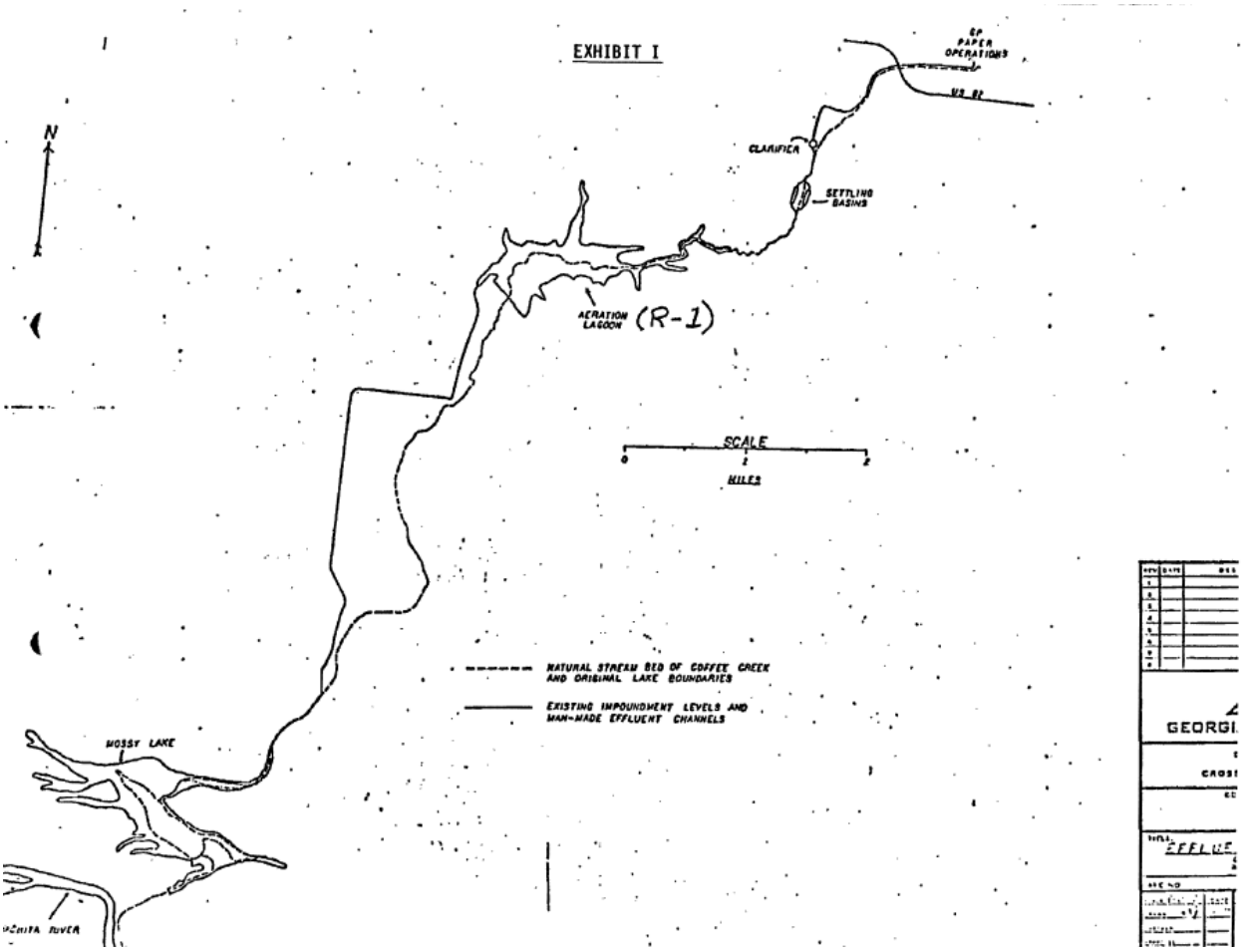
2003 *Water Quality Assessment for the Ouachita River* at 3-1.

The report also describes the City's discharges to Coffee Creek: "Crossett wastewater ponds also discharge approximately 1 MGD to Coffee Creek approximately one half mile upstream of the aerated lagoon." *Id.*

Furthermore, Georgia-Pacific has indeed admitted to using Coffee Creek as its wastewater treatment system, and its description is also consistent with Mr. Sulkin's affidavit. In 1979, a Georgia-Pacific representative, while testifying before the Arkansas Commission on Pollution Control and Ecology in support of exempting Coffee Creek from water quality standards, stated (while using the map below as a visual aid):

> We first began using Coffee Creek in 1937 when the papermill began its operations in Crossett. . . . In the beginning this Coffee Creek and the Mossy Lake area provided adequate treatment for the effluent and the paper operations with some smaller dams added on the lower end of Mossy Lake. These dams were installed by the Crossett Company or by the Georgia-Pacific -- later Georgia-Pacific. And as the operation in Crossett operations got larger or expanded it was necessary to expand this Mossy Lake and Coffee Creek system. Our first major change came in 1956 with the addition of the R-1 basin [i.e., Mill Pond]. That is this basin here [referring to drawing shown below]. This was made by forming a dam across the Coffee Creek. When this retention and stabilization basin started filling with solids in the upper end, it became apparent that a solids removal system would be required. Consequently, two earthen settling basins were constructed adjacent to the Coffee Creek in that area. And they were successful in taking the suspendable solids from the effluent[.] As further expansion and more stringent regulations came about it was necessary to upgrade the system again, and the next step was completed in 1970 with the addition of a 300-foot diameter clarifier in this area and 50-horsepower aerators in the area of the lagoon thereby converting the stabilization to an intermediate stabilization basin. Subsequently more aeration has been added to the basin as needed to meet the regulations, and the current level now is 18 75-horsepower.

Testimony of John S. Carter, Environmental Control Supervisor for Crossett Paper Operations, Georgia-Pacific Corporation, Arkansas Commission on Pollution Control and Ecology, Public Hearing Transcript (Dec. 17, 1979), pp. 13-15, Ex. B.[9]

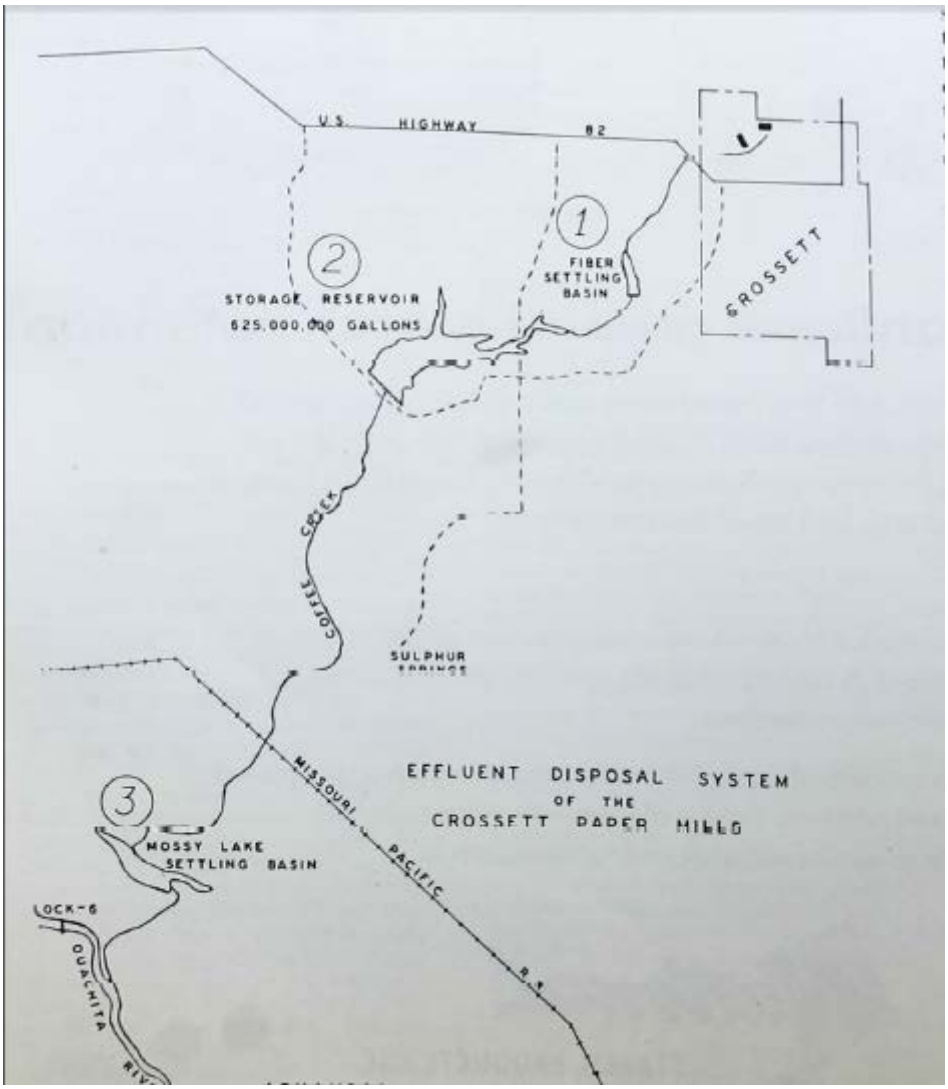


Attached as Exhibit 1 to Presentation of Georgia-Pacific Corporation to the Commission on Pollution Control and Ecology at Dec. 17, 1979 public hearing. Ex. B.

Moreover, a 1956 article from the Southern Pulp and Paper Manufacturer describes how the previous operator of the plant used the creek to dilute and treat wastewater from the paper mill and transport it to the Ouachita River. Sulkin Aff., Attachment 4, Ex. A. Explaining how the plant treats 27 million gallons a day of its wastewater in Coffee Creek to reduce pollution to the Ouachita River, the article states: "The Company has the answer in fast moving Coffee Creek that winds its way for 15 miles across the countryside before it finally enters the big Ouachita

[9] Also available on the Internet: http://www.adeq.state.ar.us/downloads/commission/minute_orders/minute%20orders%201970-1989/80-09_208_plan.pdf

River; in man-made impoundment basins, flumes and gates constructed along the creek's circuitous route." *Id.* at Attachment 4, p. 54. The article goes on to describe the treatment process: "On the trip down Coffee Creek from the mills and in the basins the dissolved materials have had ample opportunity to feed on oxygen until almost all of the appetite is satisfied." *Id.* at Attachment 4, p. 60. The article includes the following schematic of the wastewater system:



Despite all of this evidence and Georgia-Pacific's own admission, Georgia-Pacific now claims that the upper portion of Coffee Creek from its facility to just below Mill Pond is somehow only its wastewater treatment system and not Coffee Creek. *See* GP NPDES Permit Application, pdf pp. 116-117.[10, 11] Georgia-Pacific also inexplicably claims that Coffee Creek is

[10] https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0001210_Complete%20Renewal%20Application_20150513.PDF.

[11] Even Georgia-Pacific's permit application relies on maps from the Federal Emergency Management Agency and the USGS, which show that Coffee Creek originates at or near its facility. *See* Georgia-

somewhere else—that it is to the southeast of its actual location and that it circumvents its wastewater treatment system, joining with its "Manmade Effluent Channel" below Mill Pond.[12] *Id.* ADEQ adopts Georgia-Pacific's position, incorrectly labeling the segment of Coffee Creek from Mill Pond to the facility as Georgia-Pacific's wastewater treatment system. *See* Draft Permit at 101-103, 109.

II. The entire length of Coffee Creek is "Waters of the United States" subject to Clean Water Act jurisdiction.

The Clean Water Act applies to all "navigable waters," which are defined as "waters of the United States." 33 U.S.C. 1362(7). The NPDES program regulates discharges to waters of the United States. Whether a particular waterbody is a water of the United States is thus a key threshold question for determining whether a discharge into that water will require a permit under the Clean Water Act. The entire length of Coffee Creek from its headwaters at the Georgia-Pacific facility to its confluence with the Ouachita River is a water of the United States and a Clean Water Act permit is required for discharges to the creek.

EPA and the U.S. Army Corps of Engineers administer provisions of the Clean Water Act. Their implementing regulations provide that waters of the United States include "[a]ll waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, ... [a]ll other waters such as intrastate lakes, rivers, streams (including intermittent streams), ... the use, degradation, or destruction of which could affect interstate or foreign commerce, [and] [a]ll impoundments of waters otherwise defined as waters of the United States. 40 C.F.R. § 122.2 (EPA definition of waters of the United States); 33 C.F.R. § 328.3(a) (Corps definition of waters of the United States). Waters of the United States include waters that satisfy either of two tests. *United States v. Bailey*, 571 F.3d 791, 799 (8th Cir. 2009) ("[W]e join the First Circuit in holding that the Corps has jurisdiction over wetlands that satisfy either the plurality or Justice Kennedy's test [from *Rapanos v. United States*, 547 U.S. 715, 759 (2006)]."). Coffee Creek meets both tests because it has a "continuous surface connection with navigable-in-fact water" and because it has a "significant nexus" with such water. As Mr. Sulkin explains:

> Coffee Creek is a tributary of the Ouachita River. At Hwy. 82, I observed that Coffee Creek has a bed and banks and an ordinary high water marks and it is my

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Pacific Permit Application, pdf. pp. 121, 125, 126. https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0001210_Complete%20Renewal%20Application_20150513.PDF

[12] Georgia-Pacific LLC has petitioned the USGS to remove the name "Coffee Creek" on the map from the Coffee Creek stream at its headwaters on Georgia Pacific's Crossett facility property and reassign the name to a currently unnamed tributary nearby. In its preliminary report on the matter, USGS stated: "The source of Coffee Creek on the GP mill site is well attested in all sources that mention it except for the current proposal." USGS's name designation does not affect the stream's status as a water of the United States under the Clean Water Act. Elizabeth Livingston de Calderón, an attorney at the Tulane Environmental Law Clinic, forwarded a copy of Georgia-Pacific's petition and the USGS report to William Honker at EPA Region 6 on April 17, 2017.

> opinion that it contributes continuous flow to the Ouachita River by way of Mossy Lake in its lower section. I base this on personal field investigations, published studies, and my training and experience as an environmental scientist and former regulator where my duties included such determinations. I found permanent flow, along with fish in the upper section of Coffee Creek at the Highway 82 crossing which could not exist if not for the presence of permanent water.

See Sulkin Aff. ¶ 49, Ex. A. The U.S. Geological Service uses a solid blue line on its topographical maps to designate perennial streams. USGS topography maps show Coffee Creek as a solid blue-line stream originating within the Georgia-Pacific facility and flowing generally south to the Ouachita. *See id.* at ¶ 24, Attachment 2.

Despite the alterations to Coffee Creek, it remains a "water of the United States."[13] *See United States v. Moses*, 496 F.3d 984, 988-89 (9th Cir. 2007) (holding that a creek remained a water of the United States and thus afforded the protections of the Clean Water Act despite three man-made diversions constructed before the enactment of the Clean Water Act); *Leslie Salt Co. v. Froehlke*, 578 F.2d 742, 755 (9th Cir. 1978) (holding that waters from the San Francisco Bay remained water of the United States even after passing through defendant's flood gates and into defendant's salt ponds); *United States v. Vierstra*, 803 F. Supp. 2d 1166, 1170-71 (D. Idaho 2011) *aff'd*, 492 F. App'x 738 (9th Cir. 2012) (finding that excluding waterways from the Clean Water Act that have been "rerouted, recountered, and rechanneled . . . when they might otherwise constitute tributaries of navigable waters makes little practical sense."); *N. Carolina Shellfish Growers Ass'n v. Holly Ridge Assocs., LLC.*, 278 F. Supp. 2d 654, 675 (E.D. N.C. 2003) (concluding that a pond formed by impoundment of tributary of a navigable water was a water of the United States); *Nat'l Wildlife Fed'n v. Consumers Power Co*., 862 F.2d 580, 589 (6th Cir.1988) (Court held the power company's "facility merely changes the movement, flow, or circulation of navigable waters when it temporarily impounds waters from Lake Michigan in a storage reservoir, but does not alter their character as waters of the United States"). Furthermore, the fact Coffee Creek was dammed before the enactment of the Clean Water Act does not remove the creek from Clean Water Act jurisdiction. *See Moses*, 496 F.3d 984 at 989. Therefore, the entire length of Coffee Creek from its headwaters at the Georgia-Pacific facility to its confluence with the Ouachita River is regulated by the Clean Water Act.

The upper portion of Coffee Creek that Georgia-Pacific claims is its wastewater treatment system is not excluded from Clean Water Act jurisdiction under the exemption for waste treatment systems in the EPA or Corps regulations *See* 40 C.F.R. § 122.2; 33 C.F.R. § 328.3(a). That exclusion does not apply to treatment systems that have been constructed within streams or lakes that are otherwise defined as waters of the United States such as Coffee Creek. *See* 40 C.F.R. § 122.2; 33 C.F.R. § 328.3(a). EPA's interpretation of this regulation, which the court accepted, is that "the exclusion for treatment ponds was never meant to apply to treatment ponds constructed in United States waters." *West Virginia Coal Ass'n v. Reilly*, 728 F. Supp. 1276,

[13] See Sulkin Aff. ¶¶ 28, 30, 32 (describing alternations to Coffee Creek to treat and transport wastewater from the mill).

1289-90 (S.D. W.Va. 1989), *aff'd* Nos. 90-2034, 90-2040, 1991 WL 75217 (4th Cir. May 13, 1991). The Fourth Circuit explained, "We agree with the district court's conclusion that the in-stream treatment ponds and the waters above such ponds fall within the definition of 'waters of the United States.'" 1991 WL 75217 at *5; *see also In the Matter of: Borden, Inc./Colonial Sugars, Draft Permittee*, 1 E.A.D. 895 (E.P.A. Sept. 25, 1984) (finding that privately-owned wetlands that are used to treat wastewater discharged from sugar refining process since 1896 are not exempt as a "waste treatment system" where wetlands system is determined to be waters of the United States, i.e., have requisite interstate connection).

III. The Draft Permit violates Clean Water Act guidelines and requirements by failing to apply end-of-pipe technology-based effluent requirements at the points where Georgia-Pacific and the City discharge their wastewaters into Coffee Creek.

The Draft Permit misidentifies the receiving waters for both Georgia-Pacific's and the City's wastewaters, which results in Clean Water Act violations. Specifically, the Draft Permit incorrectly authorizes Georgia-Pacific to discharge its industrial wastewater, along with municipal wastewater from the City, at Outfall 001 into receiving waters described as "a man-made channel" that flows into "the upper reaches of Mossy Lake" and only then to Coffee Creek and into the Ouachita River. Draft Permit, cover page; Page 1 of Part 1A; Fact Sheet, p. 7. However, as shown above, while Outfall 001 is located just below Mill Pond, the actual outfall point where Georgia-Pacific discharges its wastewater to Coffee Creek is several miles upstream of Outfall 001. Similarly, the outfall point for the City of Crossett's discharges is also further upstream of Outfall 001 above Mill Pond. In short, the Draft Permit places "external" Outfall 001 in the wrong location.

The misidentification of receiving water and use of a so-called "external" outfall at a location several miles downstream from the actual discharge points results in several Clean Water Act violations. For example, various technology-based effluent limits apply to Georgia-Pacific's wastewater discharges depending on the source, i.e., Pulp and Paper Mill, Plywood Plant and Studmill, Chemical Plant, etc. *See* Draft Permit, Fact Sheet, pp. 10-17 (providing table with limits at p. 11 and justification for limits and conditions in table on p. 13, among other information).[14, 15] The Draft Permit establishes technology-based effluent limits for the following "effluent characteristics" at Outfall 001.

[14] Georgia-Pacific's production has increased since the issuance of its November 1, 2010 permit—i.e., fine paper = 63.04% increase; paperboard and tissue paper = 25.43% increase; and unbleached pulp = 34.47% increase. Draft Permit, Fact Sheet, p. 17. The previous permit limits (with an exception not at issue here) remain the same. *Id.* at 15 & 17. ADEQ, therefore, did not provide new limit calculations and instead states that "[a] copy of the limit calculations may be found in the Fact Sheet for the permit with an effective date of November 1, 2010." *Id.* at 17. That permit is available at this link: https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/IssuedPermits/AR0001210_Renewal_20100930.pdf

[15] The permit has no flow limit. It only has a reporting requirement for flow. Georgia-Pacific reports that it discharges a maximum of 84.5 million gallons a day of industrial wastewater, with an average of 38

Biochemical Oxygen Demand (BOD5)
Total Suspended Solids (TSS)
2,3,7,8-TCDD
Absorbably Organic Halogens (AOX)
Total Recoverable Copper
Total Recoverable Zinc
Total Phosphorus
Total Dissolved Iron
Nitrates as Nitrogen
pH

Draft Permit, Page 1 of Part 1A (listing effluent characteristics, discharge limitations, and monitoring requirements for Outfall 001); Fact Sheet, p. 11 (identifying technology-based limits for Outfall 001). But, as discussed, Outfall 001 is not at the point of discharge. Clean Water Act regulations clearly mandate that end-of-pipe limits and monitoring apply to discharges at the discharge point. 40 C.F.R. § 125.3(e) ("Technology-based treatment requirements are applied prior to or ***at the point of discharge***.") (emphasis added); *see In the Matter of: Miners Advocacy Council*, 4 E.A.D. 40, No. 1091-08-19-402 (May 29, 1992); 1992 WL 166469, at *2 (explaining that "technology-based effluent limitations . . . apply prior to or at the point of discharge, thus precluding a person testing for compliance with a technology-based limitation from factoring in dilution when measuring pollutant concentrations in the effluent.") (citing 40 CFR § 125.3(e)); *Cape Fear River Watch, Inc. v. Duke Energy Progress*, Inc. 25 F. Supp. 3d 798, 809 (E.D. N.C. 2014) (rejecting an argument that "because DENR treats Sutton Lake as a cooling pond through its permits, it is not a water of the United States" and finding "permit may violate the [Clean Water Act] because there are "sufficient factual allegations in the complaint to find [the] [l]ake is a water of the United States"). The Draft Permit, thus, violates Clean Water Act guidelines and requirements by failing to apply end-of-pipe technology-based effluent requirements at the points where Georgia-Pacific discharges its wastewaters into Coffee Creek.

Furthermore, all NPDES permits must require monitoring and reporting to assure compliance with applicable regulations. 40 C.F.R. § 122.48 (requiring monitoring "sufficient to yield data which are representative of the monitored activity"); *see also* 40 C.F.R. § 122.41(j) ("Samples and measurements … shall be representative of the monitored activity"). The Draft Permit includes monitoring requirements for each "effluent characteristic." Draft Permit, Page 1 of Part 1A. And it requires that "[s]amples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge during the entire monitoring period. *Id.* at Page 2 of Part 1A. However, the Draft Permit incorrectly provides that "[s]amples taken in compliance with monitoring requirements . . . shall be taken at the following location: following the final treatment unit (aeration basin)." *Id.* Because the samples will be taken after the wastewater has been diluted with water from Coffee Creek and with the City's wastewater, the samples cannot be representative of the effluent as discharged and therefore violate Clean

million gallons a day, from its mill and related operations in Crossett, Arkansas. GP NPDES Permit Application, Form 1, May 4, 2015, p. 10.

Water Act requirements.

Similarly, the Draft Permit violates Clean Water Act regulations by allowing Georgia-Pacific to satisfy the technology-based treatment requirements under 40 C.F.R. § 125.3 through the use of "non-treatment" techniques such as in-stream clarifiers, in-stream settling basins, in-stream mechanical aerators. *See* 40 C.F.R. § 125.3(f) ("Technology-based treatment requirements cannot be satisfied through the use of 'non-treatment' techniques such as flow augmentation [e.g., dilution] and in-stream mechanical aerators."). Here, the Draft Permit allows Georgia-Pacific to use numerous "non-treatment" techniques in Coffee Creek, including in-stream aeration, in-stream clarifiers, and dilution (by Coffee Creek's waters as well as by the mixing of Georgia-Pacific's and the City of Crossett's waste streams) before applying its technology-based treatment limitations.

Likewise, the Draft Permit violates Clean Water Act regulations by failing to apply all these same end-of-pipe requirements to the City's wastewater discharges. For example, at a minimum, the City's municipal waste must meet secondary treatment requirements before discharge into Coffee Creek. *See* 40 C.F.R. § 125.3 (a)(1)("Permits shall contain the following technology-based treatment requirements … For POTW's, effluent limitations based upon: (i) Secondary treatment—from date of permit issuance …); *id.* § 133.102 (establishing the minimum level of effluent quality attainable by secondary treatment for BOD5, SS and pH); *id.* § 125.3(e) ("Technology-based treatment requirements are applied prior to or at the point of discharge."). And, like for Georgia-Pacific's wastewater, "technology-based treatment requirements cannot be satisfied through the use of "non-treatment" techniques such as flow augmentation and in-stream mechanical aerators." *Id.* § 125.3(f).

Indeed, by presenting an erroneous point of discharge for each Georgia-Pacific and the City of Crossett, the Draft Permit repeats a host of Clean Water Act violations for each waste stream. Moreover, the Draft Permit offers no lawful basis for using one permit to authorize the discharges from two separate facilities and two separate outfalls locations into Coffee Creek.

IV. The Draft Permit violates Clean Water Act guidelines and requirements by failing to meet the requirements for Whole Effluent Toxicity.

Section 101(a)(3) of the Clean Water Act states that "it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited." In addition, ADEQ is required under 40 C.F.R. § 122.44(d)(1), to include conditions as necessary to achieve water quality standards as established under Section 303 of the Clean Water Act. Arkansas has established a narrative criteria which states "toxic materials shall not be present in receiving waters in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of aquatic biota."

The Draft Permit requires whole effluent toxicity (WET) testing to measure the potential toxicity of the discharges (Chronic WET – Once/2 months). Draft Permit, Part 1, Page 1 (Outfall 001 monitoring requirements), Fact Sheet, p. 23. The purpose of WET testing is to assess the effect that a permitted wastewater discharge may have on the aquatic organisms in the receiving

waters. This is accomplished by exposing aquatic organisms to the discharge in a controlled test. Here, the upper portion of Coffee Creek is the receiving waters for both Georgia-Pacific's and the City's discharges. But the Draft Permit requires testing at Outfall 001 (Draft Permit, Condition 22, p. 11), which is at the "Manmade Effluent Channel" below Mill Pond—miles downstream of these discharges. The Draft Permit, therefore, fails to meet the requirements for WET testing because it does not require sampling of Georgia-Pacific's and the City's wastewater at their respective discharge points to Coffee Creek. The Draft Permit does not require testing of the effect of Georgia-Pacific's and the City's discharges on aquatic organisms that live in the upper portion of Coffee Creek.[16]

Conclusion

For the foregoing reasons, EPA Region 6 should assert its authority under 33 U.S.C. § 402(d)(2) and object to the Draft Permit that ADEQ has proposed to issue to Georgia-Pacific.

Respectfully submitted on May 3, 2017 by:

Corinne Van Dalen, Supervising Attorney
Tulane Environmental Law Clinic
6329 Freret Street
Tel. (504) 862-8818
Fax (504) 862-8721
E-mail: cvandale@tulane.edu
Counsel for Ouachita Riverkeeper and Louisiana Department of Environmental Quality

cc: via email

David W. Gray, Acting Deputy Regional Administrator
U.S. EPA REGION 6
1445 Ross Avenue
Suite 1200
Mail Code: 6XA
Dallas, TX 75202-2733
Gray.david@Epa.gov

William Honker, Division Director

[16] Mr. Sulkin documents the existence of fish in the upper segment of Coffee Creek. *See* Sulkin Aff, pp. 7-8, Ex. A.

Water Quality Protection Division
U.S. EPA REGION 6
1445 Ross Avenue, Suite 1200
Mail Code: 6WQ
Dallas, TX 75202-2733
Honker.williams@epa.gov

Monica Burrell
Water Quality Protection Division
U.S. EPA REGION 6
1445 Ross Avenue
Mail Code 6WQ
Dallas, TX 75202-2733
Burrell.monica@epa.gov

Evelyn Rosborough
Water Quality Protection Division
U.S. EPA REGION 6
1445 Ross Avenue
Mail Code 6WQ
Dallas, TX 75202-2733
Rosborough.evelyn@epa.gov

AFFIDAVIT OF BARRY W. SULKIN, M.S.

BEFORE ME, the undersigned authority, personally came and appeared, Barry W. Sulkin, M.S., who, after being duly sworn, did depose and say:

QUALIFICATIONS

1. My name is Barry W. Sulkin. I am an expert in the field of environmental science and wastewater discharge permits under the federal Clean Water Act's National Pollutant Discharge Elimination System ("NPDES") and related state programs. This expertise includes, among other things, water sampling, identification of water bodies, the use of topographic and other maps for identification of water bodies, and wastewater discharge effects on water bodies and their ability to attain water quality standards.

2. I received my Bachelor of Arts in Environmental Science in 1975 from the University of Virginia where I received a du Pont Scholarship. During my undergraduate years, I worked as a Lab Technician and Research Assistant at the University of Virginia and Memphis State University conducting water and soil/sediment sampling and analyses.

3. In 1976 I joined the staff of what is now called the Tennessee Department of Environment and Conservation as a Water Quality Specialist. I worked in the Chattanooga, Knoxville, and Nashville field offices and the central office of the Division of Water Pollution Control in positions that included field inspector, scientist, enforcement coordinator, assistant field office manager, and assistant manager of the Enforcement Section. My duties included compliance inspections of water systems, wastewater systems under the NPDES permit program, enforcement coordination for the water pollution and drinking water programs, as well as work with the drinking water, dam safety, underground storage tank, and solid/hazardous waste programs. I also conducted investigations regarding fish kills, spills, and general complaints, including problems and complaints of stream alteration and water pollution.

4. In 1984 I was promoted within the Division to Special Projects Assistant to the Director, and in 1985 I became state-wide manager of the Enforcement and Compliance Section for the Division of Water Pollution Control. In this capacity I was responsible for investigating and preparing enforcement cases, supervising the inspection programs, participating in developing NPDES permits, permit compliance tracking and evaluation, and field studies involving stream alterations and water quality impacts.

EXHIBIT A

5. While in this position I received a joint State of Tennessee and Vanderbilt scholarship and took an educational leave to obtain my Masters of Science in Environmental Engineering in 1987 from Vanderbilt University. My thesis was "Harpeth River Below Franklin, Dissolved Oxygen Study," which was a field and laboratory study and computer analysis of stream water quality and impacts of pollutants from an NPDES permitted facility. I returned to my position as manager of the Enforcement and Compliance Section in 1987, where I remained until 1990.

6. Since 1990 I have engaged in a private consulting practice regarding environmental problems and solutions, regulatory assistance, permits, stream surveys, and various environmental investigations primarily related to water.

7. I am currently also the Director of the Tennessee office of Public Employees for Environmental Responsibility ("PEER"), which is a position I have held since 1998.

8. My work as a consultant has included projects related to federal Clean Water Act permits and related state programs. During my employment at the state agency, as well as in private practice since, I have had extensive experience and training regarding all aspects of NPDES permits under the federal Clean Water Act and related state programs.

9. An accurate copy of my curriculum vitae is attached to and incorporated into this Statement at Attachment 1.

10. This Statement contains my expert opinions, which I hold to a reasonable degree of scientific certainty. My opinions are based on my application of professional judgment, training and expertise to the facts and data that I have reviewed and analyzed in this matter. These are facts and data typically and reasonably relied upon by experts in my field.

SUMMARY OF OPINION

11. I have been asked by counsel for Ouachita Riverkeeper, Arkansas Public Policy Panel, and Louisiana Environmental Action Network to identify the location of Coffee Creek in Crossett, Arkansas and the location at which Georgia-Pacific, LLC ("G-P") discharges wastewater from its Crossett operations ("mill") into Coffee Creek.

12. Coffee Creek is a tributary of the Ouachita River that begins just northeast of the intersection of Hancock Rd and US Highway 82 (aka West 1st Ave) near West Crossett, Arkansas and flows about 16 miles to the Ouachita River.

13. G-P discharges its wastewater into Coffee Creek downstream of Highway 82 near the "Purification Tank", which is upstream of the aeration pond and in-stream settling basins.

14. G-P misidentifies the location of Coffee Creek.

15. G-P misidentifies the points at which it discharges its wastewater to Coffee Creek.

BASIS OF OPINION

16. I relied on the following information to form my opinion:

- United States Geological Service ("USGS") topographical maps
- Satellite and aerial imagery of Crossett, Arkansas and area waterbodies
- 1984 Coffee Creek—Mossy Lake Use Attainability Analysis (UAA)
- 2007 UAA by EPA
- 2013 Coffee Creek UAA by G-P
- G-P's renewal application dated May 4, 2015 for its National Pollutant Discharge Elimination System ("NPDES") permit no. AR0001210 for its mill discharges ("application")
- EPA Multimedia Compliance Investigation report of August 2015 of inspection February 3 through 12, 2015
- Arkansas Department of Environmental Quality ("ADEQ") report of inspection on March 16, 2011
- 1956 article in Southern Pulp and Paper Manufacturer magazine: "A Story of Water for Crossett Pulp and Paper Mill" by Ramon Greenwood, Director of Public Relations for what was then known as The Crossett Company.
- Personal observations that I made while visiting Crossett and the surrounding area to investigate the location of waterbodies and G-P's discharges on July 26, 2007; November 15, 2010; April 27 & 28, 2011; April 12, 2014; August 16, 2016

- Tests and sampling that I conducted of Coffee Creek and tributary above and below the G-P discharges and wastewater units while surveying Crossett and the surrounding area.

- Photographs that I took while in Crossett and the surrounding area.

DETAILED OPINION

A. *Coffee Creek Begins Near the Intersection of Hancock Road and US Highway 82, near GP's Mill.*

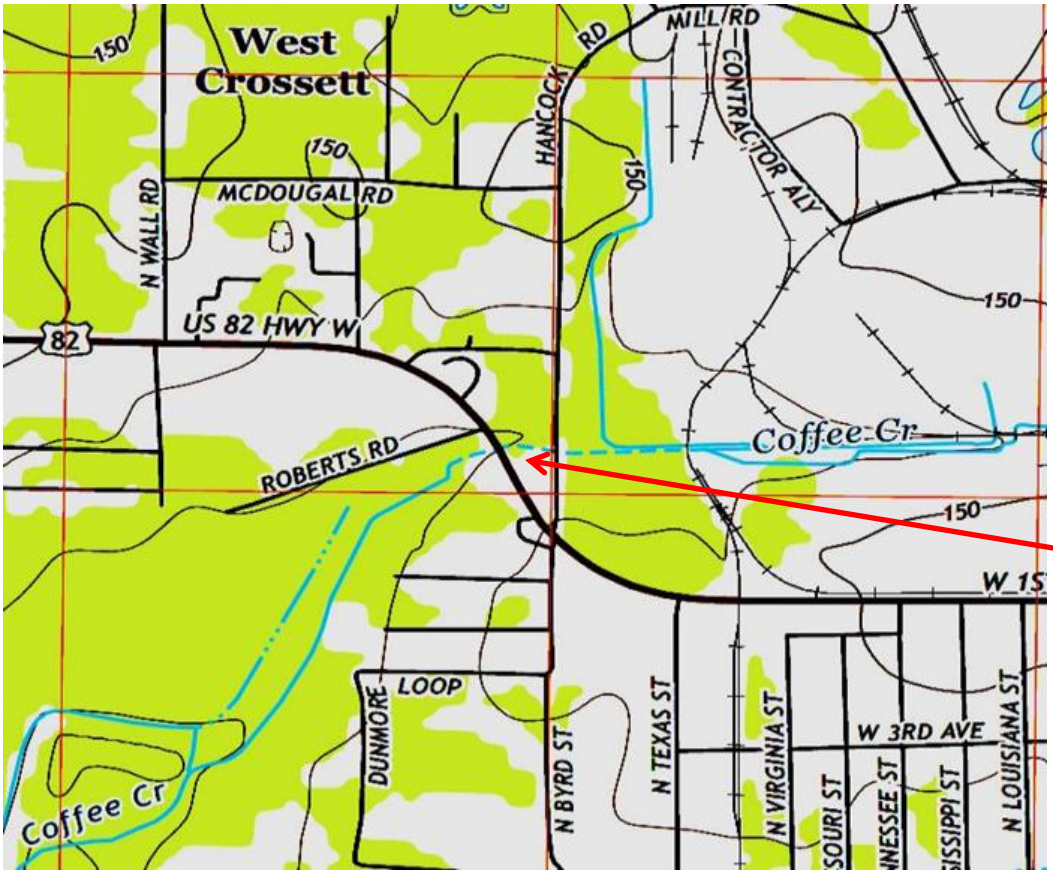
17. Coffee Creek begins just northeast of the intersection of Hancock Rd and US Highway 82 (aka West 1st Ave) near West Crossett and flows west under Hancock Road through a wooded area before passing under Highway 82 and flowing southwest.

I observed Coffee Creek by walking along the stream in the wooded area between Hancock Road and Highway 82 on April 27, 2011, where I took the following photographs of Coffee Creek. I observed fish in the stream by the Highway 82 bridge on this occasion and again on an inspection August 16, 2016, indicating permanent presence of water. Here Coffee Creek has continuous flow and typical bed and banks of a natural stream. Coordinates of this location are located at approximate latitude and longitude of 33°08'19.93"N 91°58'54.86"W.

Coffee Creek about midway between Hancock Rd & Hwy 82 April 27, 2011

Coffee Creek looking downstream from Hwy 82 crossing April 27, 2011

18. The USGS 2014 Crossett North topographic map clearly shows Coffee Creek at the point where I observed and photographed the creek on April 27, 2011. Below is an accurate image of a portion of the North Crossett topo map with a red arrow I inserted showing the segment of Coffee Creek that I observed, followed by a Google Earth satellite image showing the same spot with a red circle that I drew around the area.


West
Crossett
150
MILL RD
HANCOCK RD
CONTRACTOR ALY
MCDOUGAL RD
N WALL RD
US 82 HWY W
82
Coffee Cr
ROBERTS RD
W 1S
LOOP
DUNMORE
N BYRD ST
N TEXAS ST
N VIRGINIA ST
W 3RD AVE
N LOUISIANA ST
Coffee Cr


169
82
O Rd

EXHIBIT A

19. I was unable to observe Coffee Creek as it flows southwest through the area beyond US Highway 82 (aka West 1st Ave) because the land along the stream is fenced and posted by G-P, preventing public access.

20. Coffee Creek flows along and under several public roads. However, G-P recently closed off some of these roads to further restrict access, although I did visit and photograph some of these areas prior to closure. Much of Coffee Creek has been straightened, widened, re-routed, and damned to accommodate and treat approximately 45 million gallons a day of wastewater that G-P discharges from the mill into the creek. I have personally inspected Coffee Creek between Hancock Rd. and Highway 82, below the discharges by the "Purification Tank", at Ramsour Rd. (aka Ashley County 11 or Ashley 11 Rd.), over the out flow from the Mill Pond, and along sections of the stream where it has been diverted and channelized along county roads (Cremer 88 Trail and Ashley Rd 246) between the Mill Pond and Mossy Lake. I have also personally inspected Coffee Creek at its confluence with the Ouachita River.

21. Based on USGS topographic maps, other area maps, aerial photography, and personal observations, approximate reach lengths of Coffee Creek are follows:

    From the headwaters to the Highway 82 crossing is about one mile. Coffee Creek continues flowing southwest another 4.8 miles to a damned basin referred to as the Mill Pond. Coffee Creek then flows over a dam or weir at the western end of the Mill Pond and then generally south for 6 miles to the upper reaches of Mossy Lake (also referred to as Coffee Lake). Coffee Creek flows through Mossy Lake, which is about 3 miles long, and then flows another mile to the Ouachita River.

22. The total length of Coffee Creek is approximately 15.8 miles. From the mouth of Coffee Creek, it is about 1.2 miles downstream on the Ouachita River to the Louisiana boarder.

23. Coffee Creek is a tributary of the Ouachita River. At Hwy. 82, I observed that Coffee Creek has a bed and banks and an ordinary high water marks and it is my opinion that it contributes continuous flow to the Ouachita River by way of Mossy Lake in its lower section. I base this on personal field investigations, published studies, and my training and experience as an environmental scientist and former regulator where my duties included such determinations. I found permanent flow, along with fish in the upper section of Coffee Creek at the Highway 82 crossing which could not exist if not for the presence of permanent water.

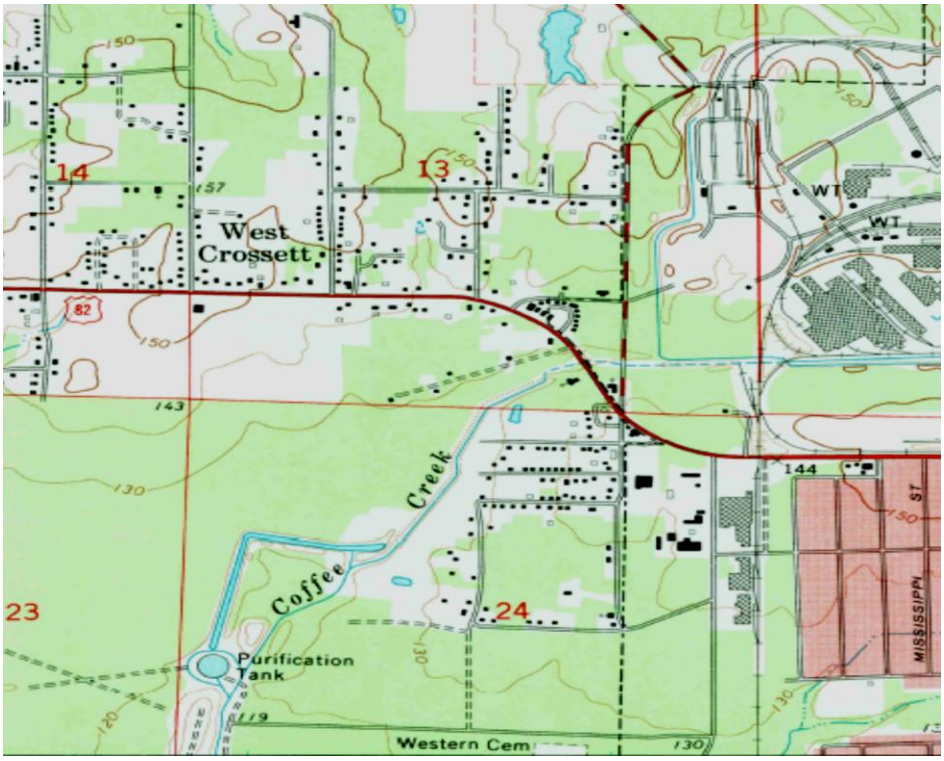
Fish I caught in Coffee Creek adjacent to Hwy 82 crossing April 27, 2011

Fish have also been document in the lower reaches of the stream and in Mossy Lake in a study conducted for EPA. *See* Use Attainability Analysis and Water Quality Assessment of Coffee Creek, Mossy Lake, and the Ouachita River, 2007; prepared for USEPA Region 6 by Parsons Corp. of Austin, TX and University of Arkansas, Ecological Engineering Group of Fayetteville, AR, and available at http://cars.uark.edu/ourwork/Water-Quality-Quantity-Management/final-report_ouachita_dec07.pdf.

24. My description of locations of Coffee Creek from its headwaters just northeast of the intersection of Hancock Rd and US Highway 82 to the confluence with the Ouachita River is consistent with the location of Coffee Creek as shown on all editions of the topographical maps of the area created by the U.S. Department of the Interior Geological Survey "USGS" since 1934 through the most recent edition in 2014. Attachment 2 is a compilation of four topo maps[1] that I created to show the flow of Coffee Creek from its headwaters to below the Mill Pond. Coffee Creek spans multiple topo maps so it was necessary for me to paste the four maps together in order to see the area. Attachment 2 is an accurate image of this compilation.

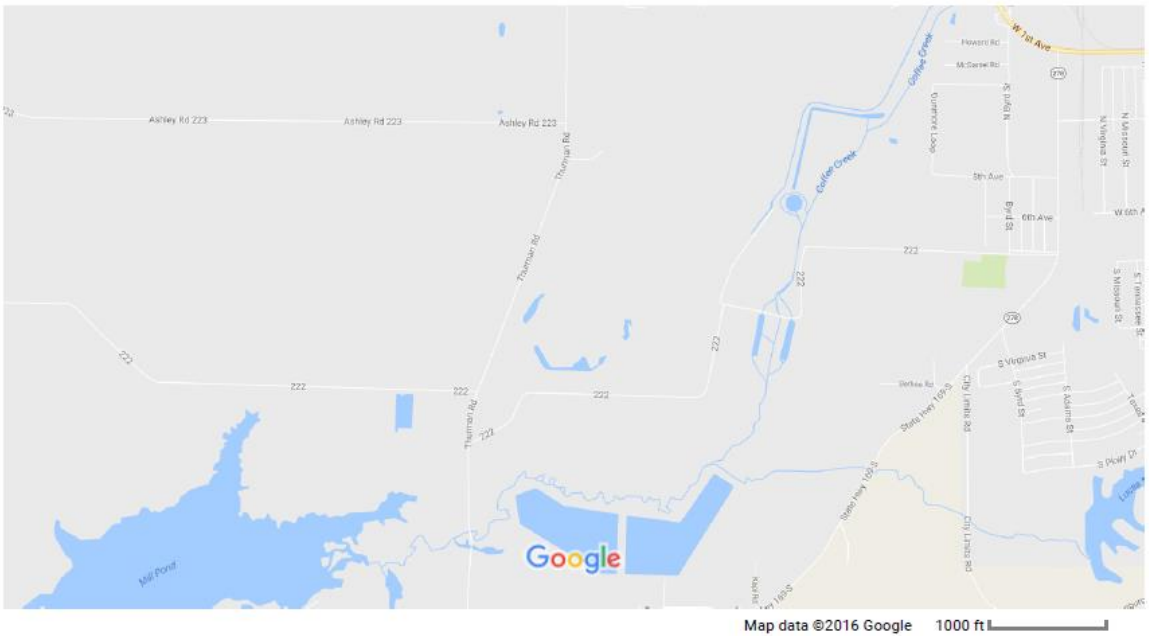
[1] The USGS topo maps that I compiled in Attachment 2 to show the flow of Coffee Creek are as follows: Upper left map is an image of Marais Saline, Ark., 1981; Upper right map is an image of Crossett North, Ark., 1973; Lower left map is Felsenthal Dam, Ark.-La., 1981; and Lower right map is Crossett South, Ark.-La., 1973.

25. Below is an accurate image of a portion of the Crossett North topo map showing Coffee Creek flowing to the southwest under Hwy 82 then past the purification tank, which is part of G-P's wastewater treatment system.



Portion of Crossett North 1973 topo map with small black squares indicating residential structures

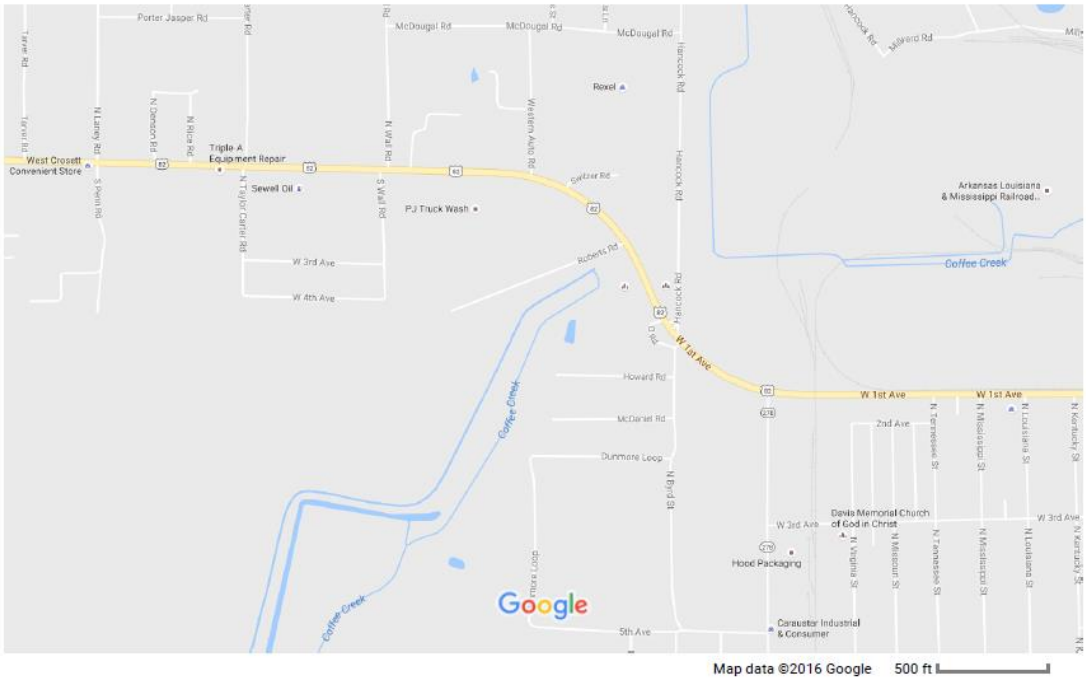
26. The locations of Coffee Creek shown in the USGS maps also match the locations shown in Google Maps and Google Earth satellite images. Below are true and accurate images copied from Google Maps and Google Earth.



Google Maps showing Coffee Creek just west of W. 1st Ave. and flowing southeast past the clarifyer, through settling basins, and to the Mill Pond (i.e., the aeration basin)

Google Earth satellite image showing same area as map image above

EXHIBIT A



Google Maps image showing closer view of the area in which the path of Coffee Creek flows under Hwy 82 in West Crossett. This area of Coffee Creek is surrounded by residential subdivisions

Google Earth image of that same intersection of Coffee Creek and Hwy 82 illustrating how the creek is currently underground just past Hwy 82 crossing

EXHIBIT A

Google Maps image showing closer view of the area where Coffee Creek flows just past the clarifier and between residential subdivisions in West Crossett

Google Earth image of the exact same view showing the buried portion of Coffee Creek flowing underground to just past the clarifier and then emerging

Closer view in Google Earth showing emergence of buried portion of Coffee Creek

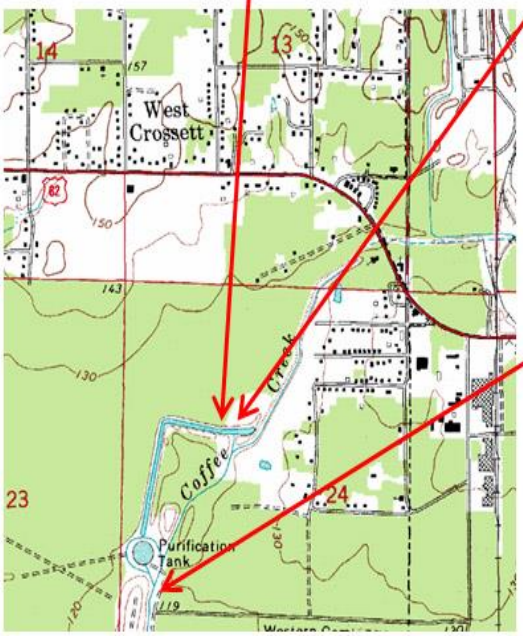
B. G-P Discharges its Wastewater from Pipes into Coffee Creek Approximately 5 files Upstream of the Mill Pond.

27. Based on information from review of maps, aerials, state and EPA inspection reports and other documents, and several visits to the area, it is my knowledge and opinion that the discharge from G-P is released from at least two outfalls located about one-half mile downstream of Highway 82 between the words "Coffee Creek" on the Crossett North USGS topo map (*see* paragraph 24) near coordinates 33º 07' 44" N 91º 59' 30" W. This location is approximately 14 miles above the mouth of Coffee Creek at the Ouachita River and about five miles upstream of where the current permit describes the discharges. I visited this location on April 28, 2011 before the road was closed and observed these discharges.

28. G-P uses sections of the natural, modified, and diverted channels of Coffee Creek as its wastewater transport and treatment system. Below Highway 82 sections of the stream appear to have been channelized and buried as it flows past the Purification Tank and on to the two parallel settling basins (just north of the "Sewage Disposal Pond") as shown on the topographic maps above, and maps & images above and below. Coffee Creek is then dammed to form the large aeration basin called the Mill Pond. The effluent from this aeration basin is diverted to an artificial channel, bypassing portions of the historic channel for several miles as it flows to Mossy Lake and on to the Ouachita River. Mossy Lake has also been altered by a dam, with the outlet previously claimed and permitted incorrectly as G-P's outfall.

One pipe discharges here and flows to the clarifier ("Purification Tank") before flowing to Coffee Creek

Another pipe discharges here and flows directly into Coffee Creek



Effluent from clarifier reaches Coffee Creek here where photo below was taken

Photo I took April 28, 2011 of actual discharge (from clarifier on left) to Coffee Creek flowing from right containing other discharge

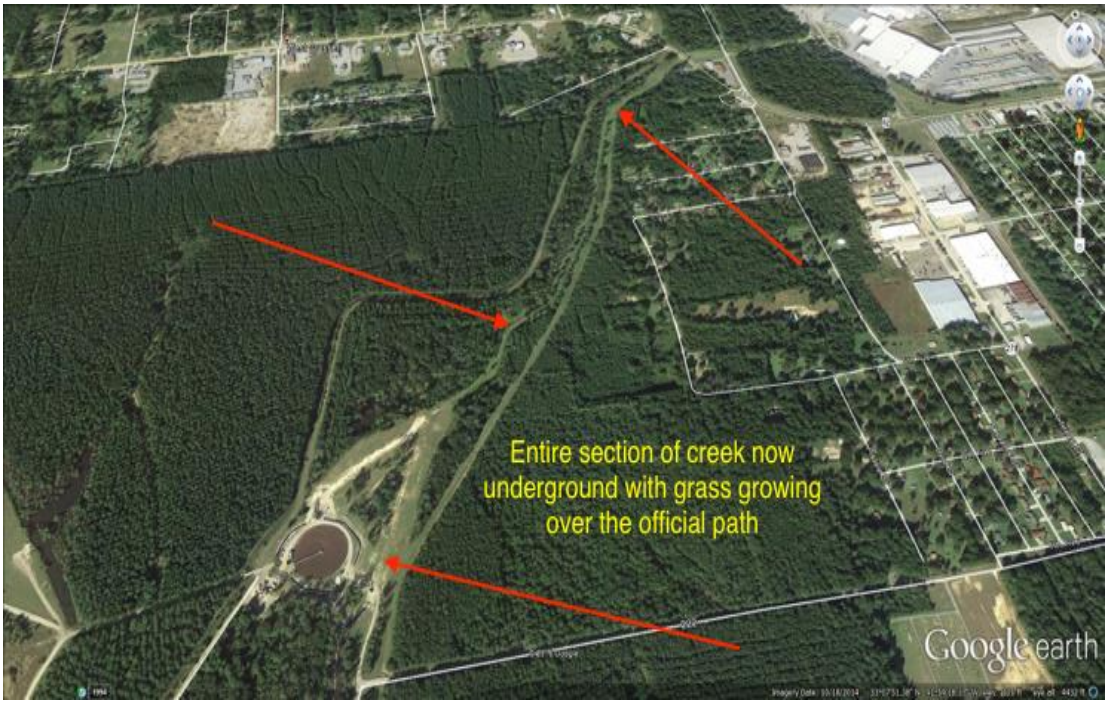
EXHIBIT A

29. The following aerial images show how Georgia-Pacific modified the path of Coffee Creek and buried it underground in the area of the clarifier in stages after 1994 and in the years since I took the April 2011 photo.

1994 Image shows Coffee Creek (unburied) as dark flow from Hwy 82 past the round clarifier in the lower left; arrows point out the path of Coffee Creek and distinguish it from the stormwater diversion channel that has two elbow bends to the west

2010 image of same area now showing two discharges, one to clarifier then Coffee Creek and one directly to Coffee Creek to the right; image shows the upper portion of the creek now buried

2012 image showing that the two discharges and another portion of Coffee Creek now buried



2016 image showing buried portions now with grass cover

30. G-P's alterations and use of Coffee Creek as a wastewater treatment system are discussed in a 1984 report obtained from ADEQ, entitled "Coffee Creek – Mossy Lake Use Attainability Analysis," Attachment 3.[2] The report states the following:

The Mossy Lake/Coffee Creek System has been used as an integral part of the wastewater treatment system of the Georgia-Pacific manufacturing complex in Crossett, AR since the turn of the century. Additionally, effluent from the city of Crossett's wastewater treatment system is discharged through Coffee Creek and Mossy Lake. Since 1937 many modifications have been made by Georgia-Pacific to provide a wastewater treatment system including primary and secondary treatment. A chronology of these changes is provided below:

Year	*Description*
1937	*Blasting to widen, straighten, and deepen creek*
1940's	*Discharge gates and canal at Mossy Lake installed*
1950	*Dams on Fish Slough at edge of Ouachita River installed to prevent river from changing course through Mossy Lake*

[2] In response to a records request, ADEQ stated that it could only find the first 24 pages of the report.

1950's	*Dams on Slough connecting Cooly* [sic] *Lake and Mossy Lake installed to isolate Cooly Lake from the System*
1956	*Stabilization basin (R-l) [i.e., Mill Pond] installed to upgrade wastewater treatment*
1956-57	*Settling basins installed upstream of R-l to reduce solids loading and improve treatment efficiency*
1963	*Levee at Mossy Lake raised to 62' MSL to increase detention time of effluent and provide more efficient treatment*
1968	*Primary clarifier and sludge storage basin installed adjacent to settling basins. Two separate parallel ditches from the mill to the clarifier installed. Mechanical aerators installed in R-l*
1968	*Discharge gates replaced with new weir at Mossy Lake*
1970	*A new channel from R-l to the abandoned railroad just upstream of Mossy Lake was installed. This channel is described in detail by the attached drawings*
1981	*Stormwater diversion ditch installed along south side of the oxidation pond to its outfall. New effluent ditch from settling basin to R-l installed*

Coffee Creek – Mossy Lake Use Attainability Analysis, pdf p. 2-3, Attachment 3.

31. This report also contains a map showing the location of Coffee Creek to be the same as the USGS maps, flowing from the mill area through waste treatment unit(s) and Mill Pond (aerated lagoon), Mossy Lake, and to the Ouachita River.

Id. at pdf p. 18.

32. Much of this same information is described in an article found in the December 10, 1956 issue of Southern Pulp and Paper Manufacturer magazine: "A Story of Water for Crossett Pulp and Paper Mill." A true and accurate copy of this article is attached as Attachment 4. At the time the company was apparently known as The Crossett Company, and the article was written by Ramon Greenwood, Director of Public Relations for the company. This article boasts about all the things they are doing in and to Coffee Creek to use it to

treat their wastewater. This article explains how they looked for a way to solve mill wastewater problems by using Coffee Creek as follows:

> *"Fortunately, The Company has the answer in fast moving Coffee Creek that winds its way for 15 miles across the countryside before it finally enters the big Ouachita River; in man-made impounding basins, flumes and gates constructed along the creek's circuitous route, and in a staff of highly skilled scientists who practice the art of river medicine."*

Attachment 4, p. 54.

> *"On the trip down Coffee Creek from the mills and in the basins the dissolved materials have had ample opportunity to feed on oxygen until almost all of the appetite is satisfied."*

Attachment 4, p. 60.

C. G-P Has Misidentified the Headwaters & Location of Coffee Creek.

In February 2009, when G-P applied for its current NPDES permit that was issued in September 2010, G-P does not acknowledge that Coffee Creek exists until after the Mill Pond, even though it has been using Coffee Creek to transport and treat its wastewater for several miles by the time it reaches the Mill Pond. G-P stated: "Wastewater exiting the aeration stabilization basin enters an earthen tributary identified as Coffee Creek, flows to a polishing pond identified as Mossy Lake, then flows to the Ouachita River." *See* G-P 2009 NPDES Renewal Application, at 97 of 103, available at https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0001210_Renewal_20090304.pdf

33. In 2013, G-P produced a report for ADEQ called a Use Attainability Analysis of Coffee Creek and Mossy Lake, which claims that a different stream is Coffee Creek. While this report included the USGS topographic maps showing Coffee Creek in agreement with the location in my descriptions and above maps, it also included labels inserted on maps and aerials depicting a different tributary as Coffee Creek.

For instance, G-P included the following aerial photo in this report misidentifying the headwaters of Coffee Creek by showing "Site 1 Coffee Creek Headwaters" as the overflow from Lucas Pond in the city park. This is an accurate and true copy of the image as it appears in Georgia-Pacific's 2013 report. This stream is shown on the USGS topographic maps as an unnamed tributary to Coffee Creek, and begins a couple of miles upstream of the Lucas Pond dam. I have inspected this tributary to the east that flows into

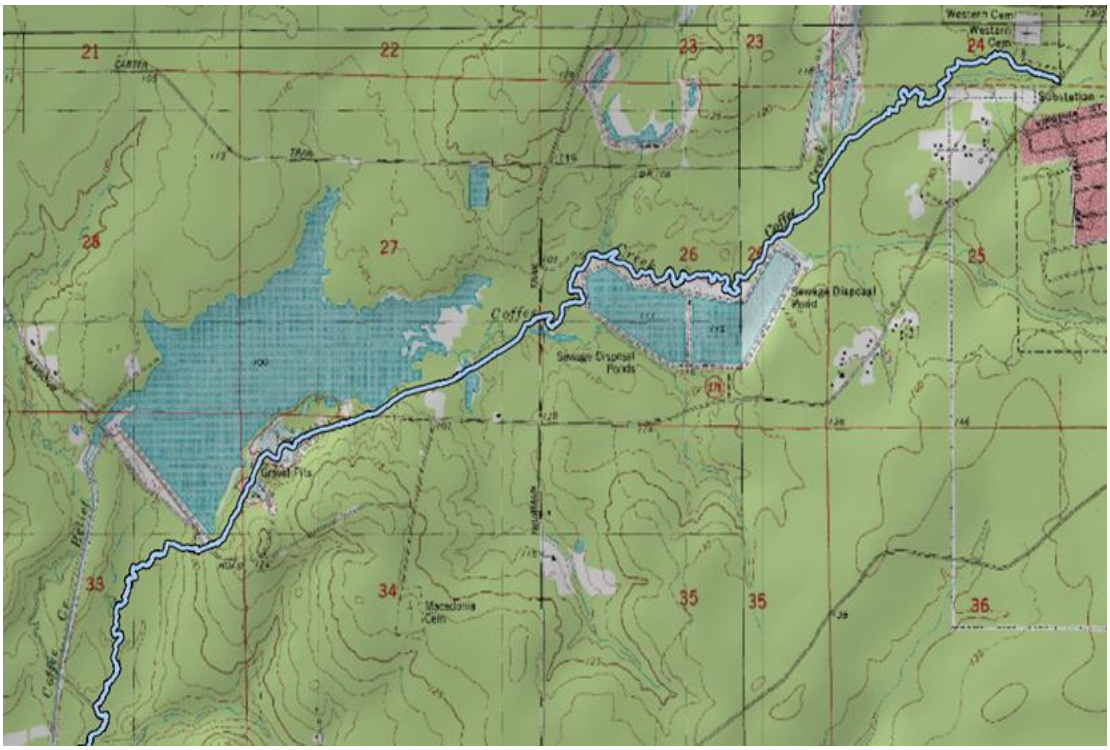
and forms Lucas Pond, upstream of the city park, along the pond, at the overflow and immediately downstream from the dam forming the pond, and where this tributary crosses under State Highway 169 S.

Image of Figure 4 in Work Plan by AquAeTer, Inc., for Use Attainability Analysis of Coffee Creek and Mossy Lake, Nov. 2014

34. In G-P's pending NPDES permit renewal application, G-P misidentifies Coffee Creek indicated with a blue line, which the legend identifies as "= Coffee Creek", drawn in the location of the unnamed tributary to Coffee Creek that flows from Lucas Pond in the City Park. The figure shows Coffee Creek flowing around the southeast side of the Mill Pond (also shown as "Aeration Stabilization Basin") by the eastern end of pond dam, and crossing under the intersection of Ashley County Road 11 and Ramsour Road. *See*. G-P 2015 NPDES Permit Renewal Application, G-P Crossett Paper Operations, NPDES Permit # AR0001210, May 4, 2015, at 116 of 130, available at https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0001210_Complete%20Renewal%20Application_20150513.PDF

As discussed and shown in paragraph 35 below, before the company closed off this road, I went to this location and found a large human-made ditch and pool of water there, but no stream. This figure in the application is inconsistent with the official USGS topographic and state maps, and what I have found at the site.

35. In January of 2016, G-P filed a request with the USGS to have the topographic maps changed to alter the location of Coffee Creek on the topo maps. G-P told the USGS that Coffee Creek is to the east of the currently mapped location of the upper portion of the actual Coffee Creek. However this is another small unnamed tributary to the actual Coffee Creek. In their submittal to the USGS they claim Coffee Creek flows in a route which misses all wastewater units including the large Mill Pond, as shown on the following figure included in their request:



Map from Appendix C of 2016 request to USGS

36. I have been to the location where this map shows Coffee Creek flowing around the southeast corner of the Mill Pond. I found a large ditch there with a pool of water, but no flowing stream, as seen in the photograph below:

Photograph taken November 15, 2010 at ditch by southeast corner of the Mill Pond

37. G-P's claim in its USGS map change request is inconsistent with the information and documents discussed above including: the 1984 UAA by the state, the 1956 magazine article, and my personal inspections.

D. G-P's NPDES Permit Places G-P's Outfall to Coffee Creek at the Wrong Location.

38. In G-P's 2009 NPDES renewal application that resulted in the permit under which G-P is currently operating and which has been administratively continued by ADEQ, G-P misidentified the receiving stream (i.e., the point at which it discharges to a stream) as follows: "Polishing Pond (Mossy Lake), thence into Coffee Creek, then into Ouachita River." *See* G-P 2009 NPDES Renewal Application, at Section B, Facility & Outfall Location, 4 of 103, available at https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/AR0001210_Renewal_20090304.pdf

39. As a result of this misinformation, ADEQ located G-P's outfall below the Mill Pond and before Mossy Lake. This is about 5 miles after G-P's effluent has mixed with Coffee Creek.

_____
BARRY SULKIN

SWORN TO AND SUBSCRIBED
BEFORE ME, THIS ____ DAY
OF _____, 2016.

_____
NOTARY PUBLIC

EXHIBIT A

BARRY SULKIN

SWORN TO AND SUBSCRIBED
BEFORE ME, THIS 3 DAY
OF November, 2016.

NOTARY PUBLIC

DAVID LEE STEPHENS
STATE OF TENNESSEE NOTARY PUBLIC
WILLIAMSON COUNTY

My Commission Expires October 3, 2018

EXHIBIT A

BARRY SULKIN
ENVIRONMENTAL CONSULTANT
4443 PECAN VALLEY ROAD
NASHVILLE, TN 37218
PHONE (615) 255-2079 FAX (615) 251-0111

CURRICULUM VITA

Born: May 3, 1953, Memphis, TN

EDUCATION

1987 M.S., **Vanderbilt University** - Nashville, Tennessee
Major: Environmental Engineering
Master's Thesis: "HARPETH RIVER BELOW FRANKLIN DISSOLVED OXYGEN STUDY"- Field and lab study, QUAL2E computer modeling of river hydrology, water quality, and impacts of a sewage treatment plant.

1975 B.A., **University of Virginia** - Charlottesville, Virginia
Major: Environmental Science

Additional undergraduate courses: math and engineering at University of Tennessee - Knoxville 1982-1984

HONORS

Conservationist of the Year, 2011, Wild South's Roosevelt-Ash Society, Ashville, NC, March 23, 2012
River Hero Award, River Network 2006
Lifetime Achievement Award, Tennessee Environmental Council, 1990
Water Conservationist of the Year, Tennessee Conservation League, 1989
State of Tennessee/Vanderbilt University
Environmental Engineering Graduate School Scholarship, 1985 - 1987
duPont Scholarship, University of Virginia, 1971 - 1975
Eagle Scout, 1967

PROFESSIONAL EXPERIENCE - CURRENT

Sept. 1990 - Present **Environmental Consultant**
Self-employed

Investigator, consultant, and scientist serving clients such as attorneys, environmental/citizen organizations, cities, individuals, businesses, media, and sub-contractor for other consultants/engineers. Activities include research projects, field studies/sampling, site evaluations, stream/wetland determinations, permit negotiations, information and file research, photography, and expert witness presentations concerning water quality, TMDL, erosion, landfills, NEPA, FERC, NRC, and other environmental issues; also TN Director of Public Employees for Environmental Responsibility (PEER). Employed by EPA as special expert for Federal Advisory Committee for Detection and Quantitaion and Uses in the Clean Water Act representing environmental groups (June 2005- Dec 2007).

PROFESSIONAL EXPERIENCE - PREVIOUS

1987-June 1990 and 1985 — **Manager**
Enforcement and Compliance Section
Division of Water Pollution Control
Tennessee Dept. of Health and Environment
Nashville, Tennessee

Responsibilities: Statewide manager of enforcement investigations and legal referrals for water pollution programs under the federal Clean Water Act and the Tennessee Water Quality Act; witness for hearings before the Water Quality Control Board, and local and state courts; data processing and analysis for wastewater permit discharges; field research projects regarding water quality problems, as well as field work involving various stream, river, lake, and wetland issues.

1989 — **Instructor**
Graduate School of Engineering
University of Tennessee, Knoxville (Nashville campus)

Responsibilities: Assistant instructor for graduate course in environmental engineering- wastewater treatment.

Sept.-Nov.1986 and 1981 — **Assistant Manager**
Regional Field Office
Division of Water Pollution Control
Tennessee Dept. of Health and Environment
Nashville, Tennessee

Responsibilities: Coordinated inspections, complaint investigations, field studies, and enforcement for wastewater programs in 41 county region.

Sept. 1985 - Aug. 1986 Education leave to attend graduate school

1984-1985 — **Special Projects Assistant**
Director's Office - Elmo Lunn, Director
Division of Water Pollution Control
Tennessee Dept. of Health and Environment
Nashville, Tennessee

Responsibilities: Provided statewide coordination and technical assistance on deep well waste injection regulations, clear- cutting forestry problem investigations, animal waste problems, public relations and media presentations, state planning and policy, enforcement and field office coordination.

1982-1984 — **Enforcement Coordinator**

Regional Field Office
Division of Water Pollution Control
Tennessee Dept. of Health and Environment
Knoxville, Tennessee

Responsibilities: Coordinated enforcement action in municipal and industrial drinking water and wastewater programs in 24 county region, including fish kills, spills, complaint investigations, and stream studies.

1981-1982 **Assistant Manager**
Enforcement Section
Division of Water Pollution Control
Tennessee Dept. of Health and Environment
Nashville, Tennessee

Responsibilities: Coordinated statewide investigations and legal actions for drinking water, wastewater, and safe dam programs.

1977-1981 **Water Quality Specialist**
Regional Field Office
Division of Water Pollution Control
Tennessee Department of Health and Environment
Nashville, Tennessee

Responsibilities: Inspected drinking water, and municipal and industrial wastewater systems for 41 county area; investigated spills, underground storage tanks, fish kills, and citizen complaints; conducted stream studies; coordinated enforcement program.

1976-1977 **Water Quality Specialist**
Regional Field Office
Division of Water Pollution Control
Tennessee Dept. of Health and Environment
Chattanooga, Tennessee

Responsibilities: Inspected public drinking water systems for nine county area; investigated spills and citizen complaints.

1975 **Research Assistant/Lab Technician**
Department of Environmental Science
University of Virginia
Charlottesville, Virginia

Responsibilities: Analyzed soil and sediment from Chesapeake Bay and marsh/wetland sites for Corps of Engineers dredge spoils study.

1974 **Research Assistant**
Department of Environmental Science
University of Virginia
Charlottesville, Virginia

Responsibilities: Weather research project data processing.

1974 **Research Assistant/Lab Technician**
Department of Civil Engineering
Water Quality Lab
Memphis State University
Memphis, Tennessee

Responsibilities: Field sampling and lab analyses of water for study of urbanization impacts of watershed streams.

PROFESSIONAL/CIVIC ORGANIZATIONS & CERTIFICATIONS (Past & Present)

Community Engagement Committee, Nashville Planning Department, 2013 to present

Beaman Park to Bells Bend Conservation Corridor community organization,
Board of Directors, 2012 to present

Certified Erosion Prevention and Sedimentation Control Professional (TN), Aug. 2004

Davidson County Grand Jury, Oct. - Dec. 1998, Nashville, TN

Nashville and Davidson County - Floodplain Review Committee, Oct. - Dec. 1998

National Environmental Health Association
*Registered Environmental Health Specialist,*1994

State of Tennessee - *Registered Professional Environmentalist,* 1982

American Society of Civil Engineers

Water Environment Federation

Tennessee Environmental Council, *Board of Directors & Advisory Board, 1994 to present*

International Erosion Control Association

Tennessee Scenic Rivers Association

American Water Resources Association

ADDITIONAL TRAINING

"Fundamentals of Erosion Prevention and Sediment Control" certification course by the University of Tennessee and the Tennessee Department of Environment and Conservation, August 26, 2004; Recertification October 9, 2007

"BASINS Training" short course of EPA supported computer mapping and water quality modeling techniques, Utah State Univ., Logan UT, August 6 - 10, 2001

"Wetland Mitigation Techniques" workshop by Tennessee Tech. Univ., Cookeville, TN April 26, 1999

"Pulp and Paper Cluster Rule and Clean Water Act Permits", by Clean Water Network with EPA, Seattle, Washington, February 18-19, 1998

"Bioengineering Techniques for Streambank and Lakeshore Erosion Control", by Wendy Goldsmith, International Erosion Control Association, April 27, 1995

"Fundamentals of Hydrogeology, Karst Hydrogeology, and the Monitoring, Containment, and Treatment of Contaminated Ground Water", by Albert Ogden and Gerald Cox, January 6-7, 1994

"Ground Water Hydrogeology and Dye Tracing in Karst Terrains", by James Quinlan, April 2, 1992

"NPDES Permit Writers Course" by the Environmental Protection Agency (EPA), April 1988

"Sediment Oxygen Demand Workshop", by EPA, U.S. Environmental Research Laboratory, Gulf Breeze, Florida, September, 1987

"Compliance Monitoring for NPDES Permits", by EPA, October, 1978

"Hazardous Materials Tactical Workshop", by Tennessee Civil Defense, April 1978

"Troubleshooting O & M Problems at Municipal Wastewater Treatment Facilities", by EPA, March, 1978

PRESENTATIONS/PUBLICATIONS

November 2015

"*Evidence For Leaking Of Two Coal Ash Storage Ponds To Local Surface Water And Groundwater In Tennessee*", Harkness, Jennifer S.[1], Sulkin, Barry[2] and Vengosh, Avner[1], ([1]Division of Earth and Ocean Sciences, Nicholas School of the Environment, Duke University, Durham, NC; [2]Environmental Consultant, Nashville, TN); Abstract & Presentation at 2015 Geological Society of America Annual Meeting in Baltimore, MD

October 2010 & January 2015

Water Quality Sampling & Testing for Litigation Uses, Western Carolina University, Environmental Chemistry Class, Cullowhee, NC

April 2014 & March 2015

Environmental Regulatory Programs in State and Federal Government, Middle Tennessee State University, Murfreesboro, TN

June 2013

NPDES Permits & Cases Presentation at International WaterKeeper Alliance annual meeting, Calloway Gardens, Pine Mountain, GA

October 2012

Appalachian Public Interest Environmental Law Conference, University of Tennessee College of Law, *"Transportation Planning for the 21st Century"* panel, Knoxville, TN

March 2012

Alabama Rivers Alliance – *"How Winning Is Possible"* Keynote address for annual conference awards, Fairhope, AL

May 2001 – May 2013

River Rally, annual national training conference held in: California, North Carolina, Washington, Virginia, Colorado, New Hampshire, Ohio, Maryland, Utah, South Carolina, Oregon; taught various seminars each year on: Clean Water Act, NPDES Permits, Anti-degradation, Stormwater, TMDLs, Enforcement, Wetlands & Mitigation; conference by River Network based in Portland, OR

July 2005

"The Clean Water Act Owner's Manual", second edition, contributing writer & editor, River Network, Portland, OR

December 2003

"Stream Flow and the Clean Water Act", Atlanta, GA, with River Network, Portland, OR

February 2003 & December 2004

"Clean Water Act - Train the Trainer", Denver, CO & Madison, WI, with River Network, Portland, OR

May 2002

"Tracking TMDLs", contributing writer & editor, National Wildlife Federation, Montpelier, VT & River Network, Portland, OR

February 2002

"A Protocol for Establishing Sediment TMDLs", contributing writer & editor, developed for the Georgia Conservancy & University of Georgia Institute of Ecology by the Sediment TMDL Technical Advisory Group, Athens, GA

March 2001

"The Ripple Effect - How to Make Waves in the Turbulent World of Watershed Cleanup Plans", contributing writer & editor, Clean Water Network, Washington, D.C.

October 1999 - April 2001

"Clean Water Act Workshop", presenter for three-day training conferences - Vermont, Georgia, Tennessee, Colorado, New Mexico, Ohio, and Alaska, with River Network, Portland, OR

October 2000

"TMDL Workshop", presenter for training in San Diego, CA, with River Network, Portland, OR

April 1999

"*U.S. Environmental Laws & Regulations Compliance - Understanding Your Obligations Under the Clean Water Act*", session on Clean Water Act for course sponsored by Government Institutes, Inc. of Rockville, MD, given in Nashville, TN

March 1999

"*NPDES and State Water Quality Permits*" and "*The TMDL Process*", presentations at the Tenn. Clean Water Network conference; March 27, 1999, Bethany Hills Camp, Kingston Springs, TN

March 1999

"*State of the Rivers: Tennessee*" presentation at World Wildlife Fund "*State of the Rivers Conference*", March 15, 1999, Chattanooga, TN, with co-author of Tenn. section of "*A Conservation Potential Assessment of the Mobile and Tennessee/Cumberland River Basins in Alabama, Georgia, and Tennessee*" by WWF

December 1998

"America's Animal Factories", contributing writer & editor, National Resources Defense Council, Washington, D.C.

December 1998

"*The TMDL Process*", presentation with NRDC attorney at national Sierra Club state leaders conference, Santa Fe, New Mexico, December 11,1998

October 1998

"*Clean Water Act Permits, Modeling, and TMDLs*" presentation at national conference of clean water organizations & attorneys, by Clean Water Network/NRDC, Oct. 16, 1998, Washington, DC

May 1998

"*Impacts of State Route 840 Upon the Human and Biophysical Environment"* NEPA, ISTEA, and Public Participation in Transportation Projects, Dept. of Environmental Geography guest lecture, Austin Peay State University, May 1, 1998, Clarksville, TN

March 1998

"*The State, EPA, Citizens - How the System Works*" Tennessee Clean Water Conference, Opening Plenary Presentation, March 28, 1998, Nashville, TN

March 1998

"*Total Maximum Daily Loads (TMDL) The Science, Process, & Controversy*" American Water Resources Association 1988 Tennessee Conference; paper presentation as part of panel with EPA representatives on TMDLs, March 3, 1998, Nashville, TN.

February 1997

International Erosion Control Association, on panel of speakers for session on practical applications of erosion controls at annual IECA national conference, Nashville, TN

October 1994

"*Stream Ecology, BMPs, and Compliance"*, environmental impacts of road building, Sierra Club Southern Appalachian Highlands Ecosystem Taskforce, Transportation Workshop, Banner Elk, NC

June 1994

"*Fundamentals of Tennessee Environmental Law*", presentation on Water Pollution Control and Compliance Strategies, for course sponsored by Government Institutes, Inc. of Rockville, MD, given in Knoxville, TN

June 1994

University of Tennessee Law School, guest lecture on water pollution and the related state and federal laws, Knoxville, TN

October 1992

"*Storm Water Regulations for Saw Mills*" - Seminar sponsored by the Tennessee Association of Forestry and the Univ. of TN, Nashville.

August 1992

"*Storm Water Regulations for Industry*" - Seminars sponsored by the Tennessee Association of Business and the Univ. of TN, Chattanooga, Knoxville, Jackson, and Nashville.

July 1992

Storm Water in Tennessee - A Training Manual for Manufacturers, University of Tennessee Center for Industrial Services

April 1992

"*Dissolved Oxygen Study - Sewage Treatment Impacts and Assessments*", VA Water Pollution Control Assoc. 46th Annual Conference, Roanoke, VA

October 1990

"*The Tainted Waters of the Cumberland*"; Cumberland Journal, v.1, no. 1, pp. 16-20; Nashville, Tennessee.

November 1988

"*A Rapid Bioassessment of Richland Creek, Davidson County*", by M. Browning, B. Sulkin, T. Merritt, TN Div. of Water Pollution Control

June 1988

"*Assimilative Capacity of the Obed River at Crossville, Tennessee*"; U.S. Geological Survey 1st Annual Hydrology Symposium, Nashville, TN

March 1987 - 1994

Vanderbilt University Graduate School of Engineering and Law School; guest lectures on water quality topics and computer modeling of river waste assimilative capacity.

July 1983

Testimony on the pollution at the Oak Ridge nuclear weapons facilities before Congressional hearing chaired by then Congressman Albert Gore.

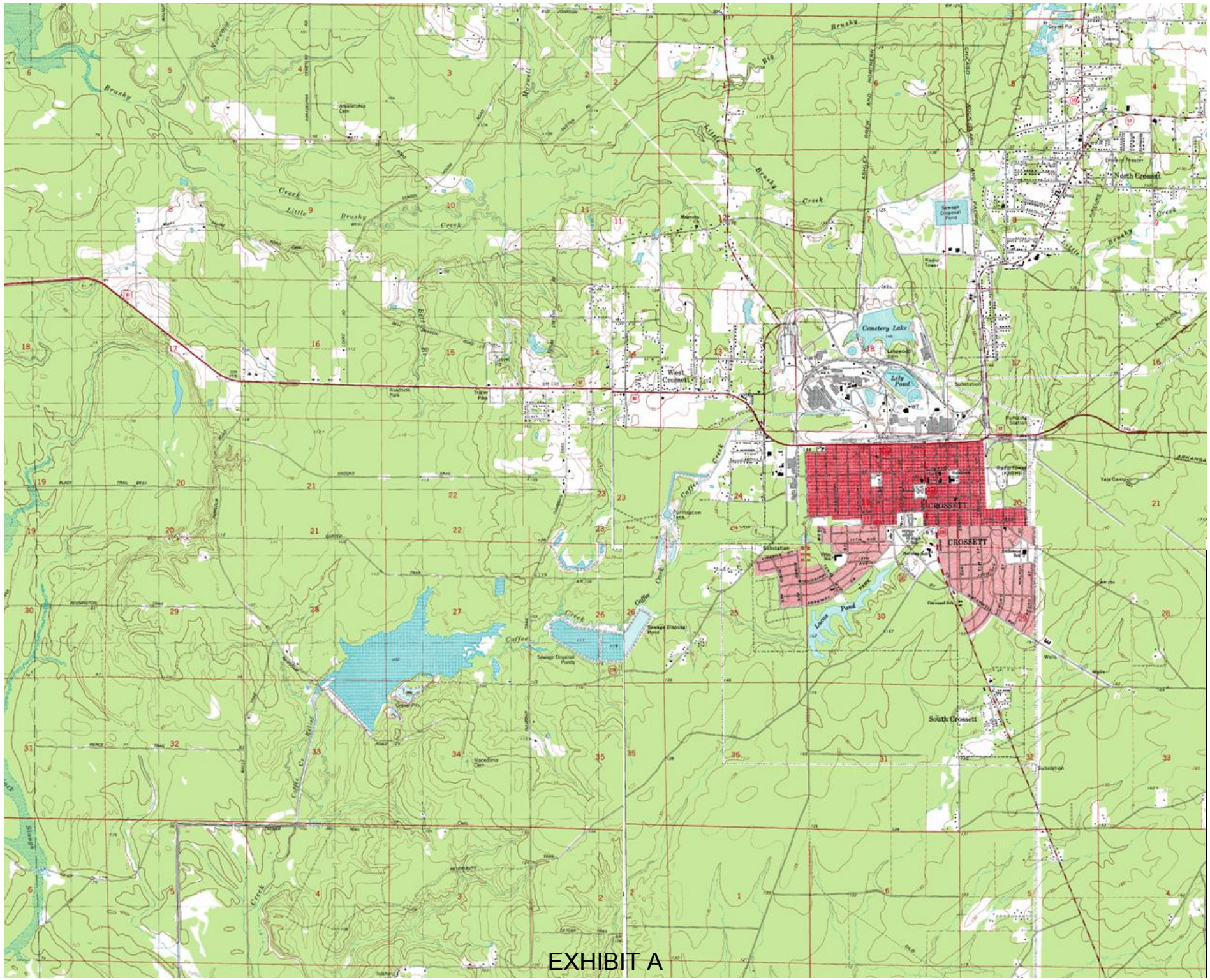


EXHIBIT A
Attachment 2

COFFEE CREEK -MOSSY LAKE

USE ATTAINABILITY ANALYSIS

SECTION I -INTRODUCTION

A. Site Description

Coffee Creek is a minor tributary of the Ouachita River with its headwaters originating within the City of Crossett, Arkansas. It meanders some 12 miles through Mossy Lake and one additional mile into the river near the Arkansas - Louisiana line. The creek area is heavily wooded with a mixture of pine and hardwood. The topography is nearly flat with only a gradual slope toward the river. The area is comprised of silty sedimentary soils with occasional deposits of clay/gravel bordering the creek lowlands.

The Mossy Lake/Coffee Creek System has been used as an integral part of the wastewater treatment system of the Georgia-Pacific manufacturing complex in Crossett, AR since the turn of the century. Additionally, effluent from the city of Crossett's wastewater treatment system is discharged through Coffee Creek and Mossy Lake. Since 1937 many modifications have been made by Georgia-Pacific to provide a wastewater treatment system including primary and secondary treatment. A chronology of these changes is prov1ded below:

Year	Description
1937	Blasting to widen, straighten, and deepen creek.
1940's	Discharge gates and canal at Mossy Lake installed.
1950	Dams on Fish Slough at edge of Ouachita River installed to prevent river from changing course through Mossy Lake.
1950's	Dams on Slough connecting Cooly Lake and Mossy Lake installed to isolate Cooly Lake from the System.
1956	Stabilization basin (R-l) installed to upgrade wastewater treatment.
1956-57	Settling basins installed upstream of R-l to reduce solids loading and improve treatment efficiency.
1963	Levee at Mossy Lake raised to 62' MSL to increase detention time of effluent and provide more efficient treatment.
1968	Primary clarifier and sludge storage basin installed adjacent to settling basins. Two separate parallel ditches from the mill to the clarifier installed. Mechanical aerators installed in R-l.
1968	Discharge gates replaced with new weir at Mossy Lake.
1970	A new channel from R-l to the abandoned railroad just upstream of Mossy Lake was installed. This channel is described in detail by the attached drawings.

1981	Stormwater diversion ditch installed along south side of the oxidation pond to its outfall. New effluent ditch from settling basin to R-l installed.

A topographic map of the area indicating these changes is provided in Appendix I of this report. A smaller map showing the general layout of the system is provided in Figure I.

Mossy Lake and Coffee Creek are subject to annual flooding from the Ouachita River during the rainy season (typically November-June). Data from a typical year (1980) is summarized in Table I. Annual flood stages of the river from ~912-1955 indicate that the 62 foot MSL of Mossy Lake was exceeded in every year except one (1936). This flood stage data is provided in the bar graph. In addition, Table II illustrates the flood period from more recent years. The flow data from Mossy Lake is reported for all months from August 1979 through June 1985, where insignificant flooding occurred and flow measurements could be made. In all other months within this time period Mossy Lake was flooded (i.e., out of 70 months Mossy Lake was flooded approximately 43 months or over 60% of the time).

Coffee Creek between R-l and Mossy Lake in the absence of effluent is intermittent in nature. Runoff from the surrounding area southeast of the creek makes up the majority of the flow. While no direct measurements of f19f through Coffee Creek have been made, documentation of periods of zero flow is provided by two methods.

First the drainage area of Coffee creek is approximately 15 square miles. This area includes an approximately four square mile area draining through Indian Creek and a one square mile area located immediately north of Mossy Lake. By comparison, Moro Creek which is located approximately 50 miles north of Coffee Creek has a drainage area of 216 square miles. U.S.G.S. data (I) for this stream shows at least one month of zero flow for five consecutive years. Because of the much smaller drainage area of Coffee Creek and expected rain fall comparable to the Moro Creek area, it can be inferred that Coffee Creek also experiences extended periods of zero flow.

A second approach to confining the intermittent nature of Coffee Creek is to examine flow monitoring data from the outfall of R-l and outfall of Mossy Lake. Flow data is available for 27 months from August 1979 through June 1985, and is summarized in Table 4. Since effluent from the city and Georgia-Pacific and rainfall runoff are the only sources flowing into Mossy Lake, the average monthly flow excluding effluent in Coffee Creek can be easily be calculated. The Figure 4 data shows many periods of near zero flow in Coffee Creek. Therefore, the seven day ten year flow condition for Coffee Creek is zero.

(1) U.S.G.S. Open File Report 84-727.

B. Problem Definition

The following use classifications have been designated for Coffee Creek (including Mossy Lake):

- Industrial water supply.
- Agr1culiural water supply.

In addition, the stream system is exempt from state water quality standards for color, flow, temperature, turbidity, pH, dissolved oxygen, radioactivity, bacteria, toxic substances (specific standards), nutrients and mineral quality. The system is subject to general water quality standards for nuisance, taste and odor, solids, floating material and deposits, *oil* and grease and toxic substances.

This study was conducted to determine if there is an existing fishery use in Coffee Creek/Mossy Lake and what uses are potentially attainable in the absence of effluent or at some higher level of effluent treatment

C. Approach to Use Attainability

The majority of data used in this report was taken from existing data available from:

- Georgia - Pacific Corporation unpublished reports.
- United States Geological Survey.
- Arkansas Department of Pollution Control and Ecology.

New data collected as part of this study was a biological evaluation of Mossy Lake conducted by _____ , and additional analyses necessary to complete a chemical evaluation of Coffee Creek/Mossy Lake.

Even though Mossy Lake is considered to be a portion of Coffee Creek, the physical, chemical, and biological evaluations are addressed separately for the lake and the creek.

SECTION II -ANALYSES CONDUCTED

A. Physical Evaluation

1. Coffee Creek

The spillway dam at the discharge of R-l and the dominance of effluent prevents fishing development upstream of this point.

The effluent ditch from R-l to Mossy Lake is man made and has a width of *12-15* feet and depth of about three feet. At typical flows of 45 MGD (69 cfs) of effluent the velocity is approximately 2 ft/sec. This ditch was completely stripped of vegetation when it was constructed in 1970 and remains mostly clear of any protective covering. Temperature of the effluent ranges from less than 50 degrees F in winter to over 90 degrees in summer. For a detailed description of this section, see Appendix ?? With the high velocity, no substrate, sparse cover, and dark color of the effluent, this segment of the system is totally unsuitable as a habitat for aquatic life or for any type recreation.

2. Mossy Lake

Mossy Lake is approximately 200 acres in area and is fed by the wastewater effluent ditch from R-l, drainage from Indian Creek and runoff from an approximately one square mile area immediately north of the lake. The only discharge from the lake is from a man made weir through an approximately one mile stretch of Coffee Creek to the Ouachita River. As noted in Section I of this report, several modifications have been made to the lake since the 1940's including installation of dams and levees. The primary purpose of these modifications was to reduce the amount of natural influent and increase the retention time in the lake (i.e., improve the wastewater treatment efficiency and protect water quality in the Ouachita River).

The lake is approximately 62 ft. MSL and floods annually for a period of 6-7 months in the winter-spring season. The area around the lake is heavily vegetated with bottomland hardwood and cypress. The bottom is covered with several inches of tree stumps and cypress knees. Temperatures in the lake are generally 25-30 degrees C° during low flow periods. When flooded, the lake temperature would be approximately the same as the river temperature. River temperature ranges from less than 5 degrees C° in January/February up to 30 degrees C° in June/July.

This water body is not satisfactory for direct contact recreation because the entire surface is occasionally covered with duck weed. When the weed dies it sinks and becomes bottom deposit material. The perimeter of the lake is covered with vegetation making it relatively inaccessible and snake infested. The appearance of the effluent is dark causing the aesthetics to be undesirable for body contact.

B. Chemical Evaluation

1. Coffee Creek

Chemical analysis data for Coffee Creek in the absence of effluent would be comparable to that found in the abandoned creek channel along the effluent system. A summary for the water quality is presented below:

Parameter	Typical Values	Data Source
Dissolved Oxygen	less than 2.0 ppm	July 1977 and October 1979
BOD	3.0- 10 ppm	July 1977 data
pH	7.5	July 1977 data
Hardness		
Suspended Solids		
Dissolved Solids		
Nitrogen		
Sediment Oxygen Demand		
COD	370- 500 ppm	July *1977* data

In addition, data for the man made portion of Coffee Creek is also provided:

Parameter	Typical Values	Data Source
Dissolved Oxygen	less than 0.5 ppm	November 1983 R-1 survey
BOD	20 -40 ppm	1982- 1984 DMR's
pH	7- 8	1982- 1984 DMR's
Hardness		
Suspended Solids	30- 50 ppm	1982- 1984 DMR's
Dissolved Solids		
Ammonia Nitrogen	0.5- 2.5 ppm	July *1977* data (6 samples)
Sediment Oxygen	350- 550 ppm	July 1977 data and March 1984 data

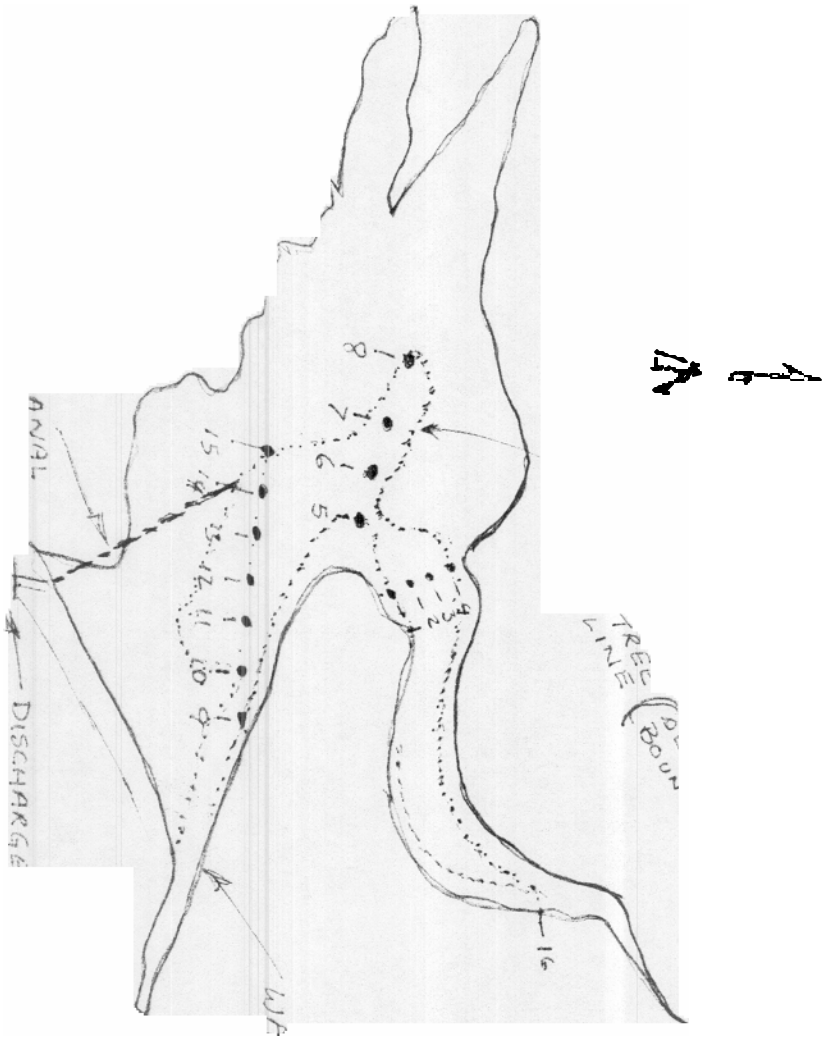


EXHIBIT A
Attachment 3

A summary of chemical analyses data for Mossy Lake during low flow conditions is provided below:

Parameter	Typical Value	Data Source
Dissolved Oxygen	0- 2.5 ppm	Were Data 1982-1984
BOD	10- 15 ppm	1982-1984 DMRS
pH	7- 8	1982-1984 DMRS
(Hardness)		
Suspended Solids	10- 20 ppm	1982-1984 DMRS
Dissolved Solids		
Sediment Oxygen Penal		
COD	350 ppm	July 1977 date
Ammonia Nitrogen	1- 2 ppm	July 1977 (9 samples)

This data primarily reflects Georgia-Pacific's effluent quality as it is discharged from Mossy Lake to the Ouachita River. Over the past several years water quality surveys in the river basin show that the effluent has little or no impact on water quality during flood conditions.

The headwaters of the Ouachita River originate in the Ouachita Mountains of central Arkansas, near the Oklahoma border. The river flows in a southeast direction, past the City of Camden (MP 330) and Smackover Creek (MP 300), and enters Louisiana at MP 221, about one mile downstream of Coffee Creek. The Ouachita River has a drainage area of 10835 square miles at the state line of Arkansas and Louisiana and a total drainage area of 18,864 square miles at the point where the Tensas joins the Ouachita to form the Black River. The confluence of the Black River and the Red River is located approximately 221 river miles downstream of the Arkansas state line. The river mile point system which is conventionally used, and which will be followed herein, is referenced with respect to the distance from the Red River. This reach of the Ouachita River is illustrated in Figure 4.

Georgia-Pacific Corporation operated a 1500 ton per day pulp and paper mill, chemical plant and plywood mill in Crossett, Arkansas. The mill obtains about 75% of its raw water supply from the Saline River and 25% from groundwater, and discharges its biologically treated process wastewater to the Ouachita River. The effluent enters the river about 1 mile north of the Arkansas-Louisiana State line, and there are no other significant point source loads entering the river for a distance downstream of almost 30 miles to the confluence with Bayou Bartholomeu. Downstream of Bayou Bartholomeu, a number of industrial and municipal loads enter the Ouachita, including the discharges from Olinkraft, IMC, and the City of Monroe.

The Georgia-Pacific Paper Mill is located in Crossett, Arkansas, 12 miles northwest of where the Ouachita River enters Louisiana. The process wastewater undergoes primary clarification followed by extended aeration.

The 625 million gallon aerated lagoon, which also treats the domestic wastewater from Crossett, provides on the order of 2 weeks detention time at wastewater flow rate of 45 mgd. The effluent from the lagoon (R-l) flows via Coffee Creek to Mossy Lake where additional treatment is obtained, after which it discharges to the Ouachita River. The entire Coffee Creek watershed is located on land owned by Georgia-Pacific, and historically has been considered part of the mill's treatment system.

Coffee Creek enter# the Ouachita River slightly more than one mile downstream of Lock and Dam No.6 at Felsenthal. The United States Geological Survey (USGS) maintains a continuous recording gage near Lock 6, providing daily estimates of river flow throughout most of the year. A number of relatively small tributaries enter the river between the dam and Bayou Bartholomeu, but the intervening drainage area over this distance represents an increase of less than 4% relative to the *10,850* square ml1es at Lock 6. Hence, the river flow can be considered to be relatively constant over this reach of the river. Bayou Bartholomeu does account for a significant increase in flow to the Ouachita River. Downstream from this point a number of additional waste loads enter the river, and the system becomes increasingly complex.

The Ouachita River is a hydrologically unique river system which regularly experiences the extremes of both very low flow and flood conditions. During most of the year, the river is within its banks, and flow is regulated by a series of lock and dams. Of particular interest here are the dams at Columbia and Felsenthal. The Corp of Engineers is obligated by existing regulations to maintain prescribed water surface levels (pool depth) in order to maintain navigable waterways. As a result, during low flow periods of the year, the gates at the dams are raised in order to minimize water losses from the upstream pools. The presences of these dams and the associated gate manipulations have several important ramifications on the water quality of the river. First, restricting flow over the dam necessarily reduces flow to the downstream reach, there by exacerbating what may already be critically low flow conditions. This problem is compounded by the fact that the dam at Columbia creates impoundment of water which has a very low hydraulic gradient, and hence diminished capacity for reaeration.

At the other extreme, the Ouachita River regularly experiences periods when the river stage rises and water inundates a 5 mile wide flood plain for a distance more than 60 miles upstream of Alabama Landing (HP 208). This flood plain comprised almost entirely of forest lands. Historical water quality data, which will be discussed in detail in subsequent section of this report, has demonstrated that the dissolved oxygen level in the river becomes severely depressed when this condition occurs.

Georgia-Pacific Corporation has been conducting routine water quality surveys on the Ouachita River since about 1978. These surveys were usually conducted between State Highway 82 in Arkansas and Sterlington, Louisiana (La MP 234.5-189.5, or 1939 COE MP 250-205). The data includes measurements of temperature, dissolved oxygen and color at stations located every 5 miles throughout the aforementioned reach of the Ouachita River. Prior to 1978, the surveys were usually performed once per week during the period of the year when the river was within its banks. Since 1978, however, data has been collected during both the low flow and high flow flood conditions.

Since *1978* it has been consistently observed that depressed dissolved oxygen levels are associated with flooded river conditions. In order to gain a better understanding of this relationship, the dissolved oxygen concentration and Ouachita River stage from the 1978-79 and 1979-80 water years have been p1otted chronologically, as shown in Figure 2. The Lock 6 stage is present~~ in the upper graph, rather than flow, due to the fact that flows are not reported when the river is out of its banks. Since zero stage corresponds to an elevation of 44.09 feet above mean sea level, the water surface elevation may be obtained directly by adding the stage to this datum. Thus, the water surface elevation that corresponds to the reported river stages is shown on the right axis of the upper graph. The lower pool stage, downstream of Lock 6, is usually at approximately 8.0 feet during low flow conditions of 1000-2000 cfs. The river is out of its banks, or "bank full" at a stage of about 19 feet which corresponds to a flow of approximately 13,000 cfs. The lower graphs of Figure 2 present the dissolved oxygen concentration and deficit at the upstream and downstream ends of the reach of the river over which the routine surveys were performed. Dissolved oxygen deficit is the difference between the maximum or dissolved oxygen saturation concentration that could exist in the river at any given temperature and the observed river dissolved oxygen concentration. The middle graph presents data collected at what is considered to be a background station, near Highway 82, more than 12 miles upstream of the Georgia-Pacific discharge. The lower graph presents data collected near Sterlington, approximately 33 miles downstream of the Georgia-Pacific discharge.

As shown on the chronological plot of river stage, the river was at a very low flow condition in October *1978.* Dissolved oxygen concentrations of 6-7 mg/l and deficits of 2-3 mg/l were observed at both the upstream and downstream stations. After the river overflowed its banks in December, dissolved oxygen concentrations increased steadily toward a maximum of about 11 mg/L in February 1979. This increase was primarily a reflection of the lower temperatures and higher dissolved oxygen saturation concentration, since the background and downstream deficits of 2-3 mg/l remained relatively constant. At this time, the water temperature was 3 degrees C and the river stage was 31 feet, corresponding to a water surface elevation of 75 feet. The Ouachita River flood plain, primarily forest land, was inundated with 10-15 feet of water for 2-3 miles on both sides of the river, over most of the survey area. During the next 2-3 months, the water temperature increased steadily. The river stage peaked at almost 38 feet, and the dissolved oxygen deficit, at both the background and downstream stations, increased to 7 mg/l. With the accompanying decrease in the saturation concentration, minimum dissolved oxygen concentrations of 1.0 and 1.6 mg/l were reported at the background and downstream stations respectively.

It was not until the middle of June that the flood waters began to recede. At this time deficits of 6-7 mg/l had been sustained for a period of 12 weeks. Hence, it is apparent that the depressed dissolved oxygen levels cannot be attributed to the effects of the receding flood waters. To the contrary, as the flood waters receded, the deficits responded immediately by decreasing to 2 mg/l, as observed during the period of time while preceded the *1978-79* flooding. The river was within its banks by mid-July, and shortly thereafter the dissolved oxygen concentration recorded from a minimum of 1 mg/l at low temperature and high flow conditions to about 5-6 mg/l, even though the flow was much lower and the wate~1 temperature had increased to 27 degrees C°.

It should be noted that the 1978-79 flood represented the most extreme level of flooding which has occurred in recent years. The river stage approached a height of 38 feet, corresponding to a water surface elevation of 82 feet above mean sea level, and the onset of flooding began in the vicinity of MP

265 to 270, or 30 to 35 miles upstream of the first routine survey sampling station. Inspection of Figure 2 for the 1979-80 water year shows a very similar if not quite as dramatic pattern of events occurred as the river flooded and receded. During this water year, the river stage rose to about 32 feet, and the limits of the flooding extended as far as MP 255, 15 miles upstream of the Saline River. A review o data which was collected from 1970-1977 suggests that similar conditions occurred whenever the river flooded. Although surveys were not usually preformed when the river was flooded during these earlier years, observed deficits during the first 2-3 weeks after the flood waters receded consistently showed a decreasing trend.

The spatial profiles of dissolved oxygen during selected periods of time during 1979 are shown in Figure 3. Four time intervals, a-d, as indicated on the under chronological plot of river stage, have been selected to illustrate the dissolved oxygen profile of the river under different river temperature and flow conditions. During period (a), the river was near its maximum 1979 stage at an estimated flow of 50,000 cfs and the average water temperature of 20 degrees C corresponds to a saturation concentration of 9 mg/l. Background dissolved oxygen levels averaged 3-4 mg/l throughout the 12 mile reach upstream of Coffee Creek. Although slightly lower average dissolved oxygen levels did occur downstream, it is apparent that the rather large deficit of approximately 6 mg/l was dominated by the upstream conditions. Over time interval (b), just prior to the time when the flood waters receded, similar conditions occurred. Here, dissolved oxygen levels were generally les than 2 mg/l. Time interval (c) took place shortly after the river was back within its banks. Although the water temperature of 28 degrees C° was higher and river flow lower, average dissolved oxygen concentrations of 5-6 mg/l represented a marked improvement relative to the preceding time interval. The average dissolved oxygen deficit was bout 1.9 mg/l upstream of Lock and Dam 6; and 2.6 mg/1 in the vicinity of La. MP 195. Finally, spatial profile (d) illustrates the dissolved oxygen profile at a flow of 6850 cfs and a temperature of 12 degrees C°, as observed on November 15, 1979. Here, the spatial profile was again quite uniform, with dissolved oxygen concentrations of about 9 mg/l and deficits of 1-2 mg/l throughout the study area.

The preceding review of the routine survey data illustrates several important points. First, during the period of time when the river was within its banks, the background deficit in the vicinity of MP 234 was typically 2 mg/l. Second, when the river was flooded, background deficits as high as 6-7 mg/l were observed a considerable distance upstream of Georgia – Pacific’s discharge, and these deficit prorogated throughout the survey area. The high background deficit was generally observed after a period of sustained flood conditions, and usually dissipated as the flood water receded to the main channel. The dissolved oxygen profile during flooded conditions was as low as 1 to 2 mg/l, and for extended period of time, lasting as long as several months, the dissolved oxygen standard of 5 mg/l was not achieved.

As shown previously on Figure 2, the Ouachita River entered a sustained period of flooding in December of 1979. Initially the stage at Lock 6 remained less than 25 feet and on several occasions, the water receded to within the river banks. Finally, on March 11, 1978, the water level began a steady rise to a stage of more than 30 feet, where it remained for the next 9 weeks. Due to the paucity of data available for the purpose of characterizing flood plain water quality, a sampling program was implemented On April 22, 1980, in order to establish such a data base.

Figure 4 illustrates the spatial extent of the flood plain and the approximately location of the flood plain sampling stations. The 75 foot contour line represents the approximate fringe of the flood waters which would correspond to a 30 foot stage. As shown, the flooded forest land covers a 5 mile wi4~ area of land which begins about 15 river miles upstream of the Saline River and ends downstream of Alabama Landing, in the vicinity of MPI 210. A levee which begins near MP 217 prevents the river from flooding the bean fields on the eastern shore, thereby limiting the eastern flood plain to a relatively narrow strip of land for a considerable distance downstream from this location. The flood plain sampling stations are located along an east-west transect which crossed the main channel of the Ouachita River, 10-12 river miles upstream of Coffee Creek. Two stations were located approximately 1 and 2 miles away from the main channel, on both east (Stations 1E and 2E) and west (Stations 1W and 2W) sides of the river. These stations, as well as a main channel station (MC) located near HP 234 were usually sampled once per week from April 22, 1980, 6 weeks after the river was last within its banks, until the water receded from the flood plain in the latter part of June. Temperature and dissolved oxygen were measured at each station, and surface and bottom composite samples were analyzed by Georgia-Pacific for pH, BODS, COD and color.

Spatial plots of the BOD5 and dissolved oxygen profiles along the flood plain transect are presented in Figure 5. The average and range of data collected during the 8 week period of the flood plain sampling program is shown for each station. Observed BODS levels of 1 to 3 mg/l were representative of natural occurring background concentrations and tended to be somewhat higher with increasing distance from the main channel. Station 2W, location the western side of the flood plain and furthest from Georgia-Pacific had the highest average BODS concentration of almost 2.5 mg/l. The dissolved oxygen profile shown in the lower graph of Figure 6 had the opposite shape, with the highest average dissolved oxygen concentration of 4.5 mg/l occurring at the main channel station. Dissolved oxygen levels decrease in the direction of the fringes of the flood plain, having average concentrations of 2.8 and 3.5 mg/l at stations 2Wand 2E respectively. The wide ranges in the dissolved oxygen concentration reflect the temporal decrease in dissolved oxygen that was observed over the course of the flood plain sampling program. One additional measurement of 1.2 mg/l at the western edge of the flood plain represents the minimum depth averaged dissolved oxygen concentration that was observed.

The temporal variation of the data collected during the flood plain sampling program is summarized in Figure 6. When possible, the data is supplemented with routine survey data and intensive water quality survey data from the Ouachita River. The abscissae shows the duration of flooding referenced to March 11, 1980, when the river overflowed its banks. Flood plain sampling took place from 6 to 13 weeks after the river was experiencing flood conditions, as indicated on the graph of river stage. During this time, the river stage was usually 28-30 feet. Sampling was necessarily terminated when the flood waters receded. Over the period of time shown on the graphs, the water temperature increased from 12.0 degrees C° to 23.5 degrees C°. The BOD5 data, although quite variable relative to the low concentrations which were measured, tended to increase gradually throughout most of the sampling period, increasing from 1.4 mg/l (average of all stations) in the sixth week to 2.1 mg/l at the time of the July 2-3, 1980, Ouachita River survey. Thirteen weeks after the initial flooding of the river, a lower BOD5 concentration of 1.3 mg/1 was measured.

The final graph in figure 6 presents the change in the average dissolved oxygen concentration with time and includes both the flood plain data and routine river survey data at MP 234. The main channel dissolved oxygen concentration was 9.5 mg/l at the onset of flooding, but decreased steadily to 3.5 mg/l. The average flood plain concentrations followed the same trend,

but were consistently lower. Average deficits of about 5 mg/l were observed during this period of time. Fourteen weeks after the initiation flooding, the river was back within its banks, and the main channel dissolved oxygen concentration responded by increasing to 4.8 mg/l in slightly more than one week. Shortly thereafter, background deficits were once again about 2 mg/l in the vicinity of HP 234.

C. Biological Evaluation

1. Coffee Creek

2. Mossy Lake

TABLE___

Flow Data (Million Gallons per Day)

	R-1 Lagoon Coffee Creek	Coffee Creek to Ouachita River	Difference
Aug.1979	47.4	48.0	+0.6
Sept.1979	47.9	48.5	+0.6
Oct. 1979	46.5	45.6	-0.5
Nov. 1979	51.4	53.5	+2.1
Aug. 1980	45.2	42.1	-3.1
Sept.1980	47.3	43.6	-3.7
Oct.1980	48.7	51.5	+2.8
Nov.1980	49.8	56.1	+4.3
Aug.1981	50.8	45.0	-5.8
Sept.1981	51.7	46.6	-5.1
Oct.1981	51.1	52.1	+1.0
Nov. 1981	51.0	50.4	-0.6
Dec. 1981	47.7	51.2	+3.5
Jan.1982	46.7	53.1	+5.4
June 1982	46.5	54.3	+7.8
July 1982	40.5	34.8	-5.7
Aug.1982	45.8	47.4	+1.6
Sept.1982	44.6	41.1	-3.1
Oct. 1982	45.4	51.7	+6.3
Nov. 1982	45.8	45.7	-0.1
Aug. 1983	40.5	37.7	-2.8
Sept. 1983	41.3	39.9	-1.4
Oct. 1983	40.8	41.6	+0.8
Nov. 1983	42.4	44.6	+2.2
July 1984	40.4	38.7	-1.7
June 1985	37.2	36.3	-0.9

EXHIBIT A
Attachment 3

	R-1	Mossy lake
1/82	38.8	18.0
2/82	56.0	----
3/82	69.4	----
4/82	57	----
5/82	43.4	----
6/82	44.8	31.3
7/82	37	34.8
8/82	43	32
9/82	28	24
10/82	21	15
11/82	34	11.2
12/82	44	20
1/83	35	5
2/83	49	10
3/83	34	7.3
4/83	42	10
5/83	43	12
6/83	42	8
7/83	32	17
8/83	29	12
9/83	24	17
10/83	31	11
11/83	31	15
12/83	54	--
1/84	63	23
2/84	59	19
3/84	49	--
4/84	49	--
5/84	40	17
6/84	45	23
7/84	37	13

8/84	42	13
9/84	50	18
10/84	67	--
11/84	52	--
12/84	82	--

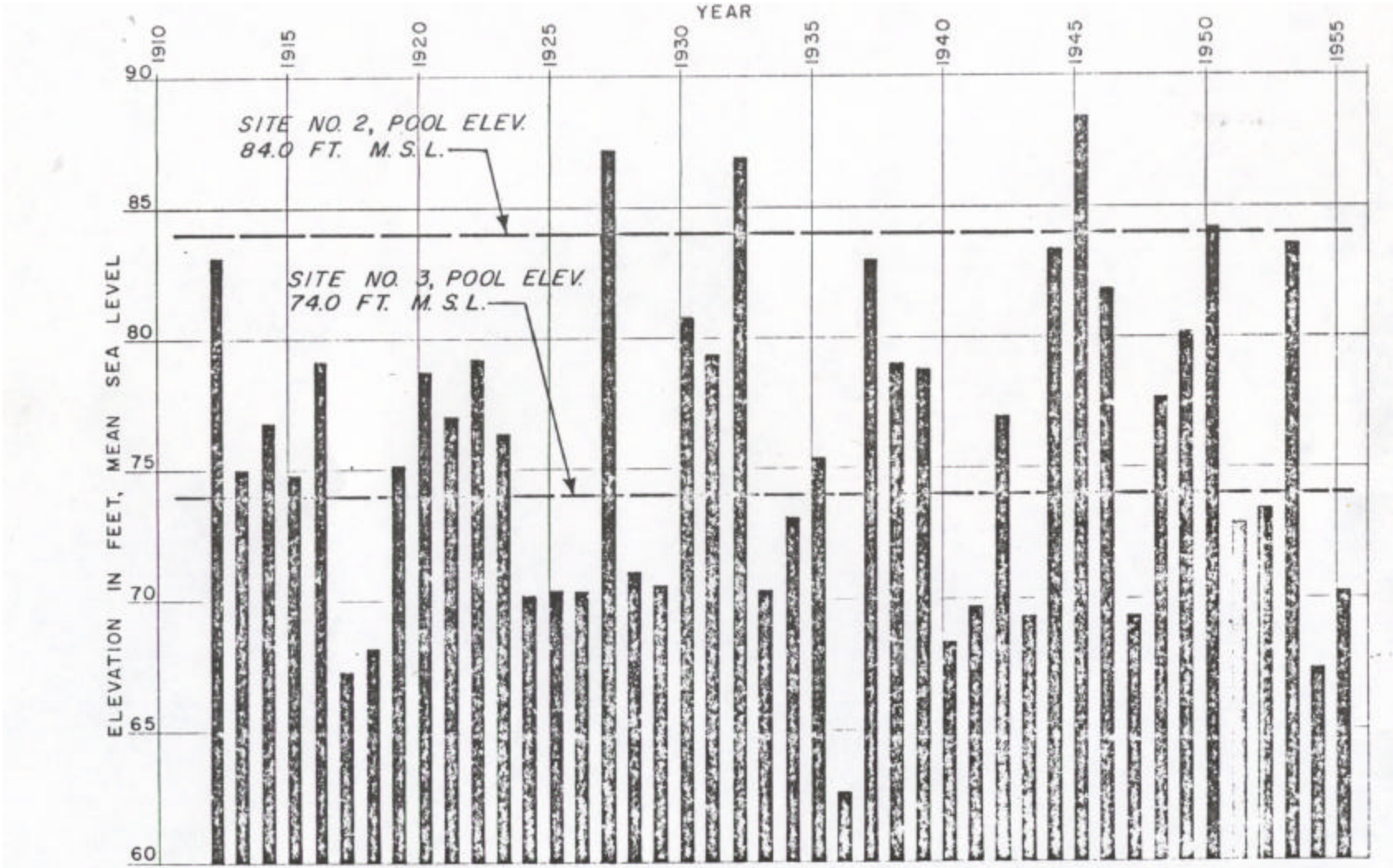
R-l Coliform Tests

	Total	Feed
5/4/78	1360 mg/1	1230 mg/1

Mossy Lake

DOB Data

1/82	20/9 ppm	1/83	--	1/84	--
2/82	--	2/83	--	2/84	--
3/82	--	3/83	--	3/84	--
4/82	--	4/83	--	4/84	--
5/82	--	5/83	--	5/84	--
6/82	16.2	6/83	--	6/84	5.5
7/82	18.9	7/83	--	7/84	12.0
8/82	14.0	8/83	9.0	8/84	8.0
9/82	9.0	9/83	11.0	9/84	12.0
10/82	9.0	10/83	15.0	10/84	--
11/82	9.8	11/83	12.0	11/84	--
12/82	--	12/83	--	12/84	--



NOTE:

1. RECORD FLOOD LEVELS HAVE NEVER REACHED POOL LEVEL OF SITE NO. 1.
2. RECORDS INDICATE THAT FLOOD LEVELS WILL REACH SITE NO. 2 POOL LEVEL ONCE EVERY 12 YEARS.
3. RECORDS INDICATE THAT FLOOD LEVELS WILL REACH SITE NO. 3 POOL LEVEL ONCE EVERY

HIGHEST ANNUAL FLOOD STAGES
OUACHITA RIVER

RECORDS FROM U. S. CORPS OF ENGINEERS
OUACHITA RIVER, LOCK & DAM NO. 6
FOR
COFFEE CREEK RESERVOIR STUDY

AREA 216 SQ. MI.

T	NOV	DEC
01	3.15	98.4
	20.2	34.7
	0	1.04
	0.007	10.6
9	0.16	0.70
	0.69	1.33
5	768	585
7	22.8	18
77	2.01	233

EXHIBIT A
Attachment 3

Table 6.--Mean-daily discharge for 1981 water year, in cubic feet per second, at Moro Creek near Fordyce (07362500)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	313	58	213	36	59	130	110	13	210	134	66	6.0
2	315	47	224	34	147	120	100	11	307	343	37	6.2
3	313	35	207	32	219	110	95	9.9	883	260	15	6.1
4	351	26	165	30	292	100	90	9.4	956	109	7.6	5.1
5	394	20	118	27	330	120	180	11	1170	54	4.5	4.2
6	353	17	87	29	312	130	270	14	3680	47	3.2	3.6
7	184	16	69	39	240	150	370	12	3400	42	2.7	3.0
8	67	14	59	48	180	160	568	10	2470	45	2.8	2.7
9	35	13	105	59	160	140	673	18	1680	41	2.6	2.3
10	23	12	233	61	150	120	602	66	1210	28	1.9	1.9
11	17	12	328	57	160	100	323	81	984	19	1.3	1.7
12	13	11	387	52	190	85	157	110	686	13	1.0	1.4
13	11	11	490	47	220	80	98	120	337	9.2	.86	1.3
14	9.3	12	702	44	250	70	71	103	147	6.5	.72	2.8
15	8.1	24	912	38	300	70	54	100	84	5.0	.63	23
16	7.0	34	814	35	340	60	44	126	54	4.1	.55	27
17	8.9	69	530	32	360	55	37	726	37	3.3	.56	11
18	12	201	300	29	320	50	30	1390	29	2.7	.72	5.3
19	15	335	181	27	250	45	25	2080	26	2.2	.89	3.4
20	16	398	124	28	200	40	22	1990	51	2.0	50	2.5
21	34	456	98	30	160	40	20	1490	53	1.8	137	1.9
22	63	540	79	32	150	40	18	1090	34	1.5	207	1.7
23	52	619	68	37	160	50	17	824	22	1.3	228	1.7
24	35	613	60	41	170	60	15	515	16	1.1	135	1.5
25	23	455	54	45	160	70	17	229	12	.87	51	1.3
26	16	284	50	47	150	80	34	262	9.9	.75	25	1.1
27	18	201	47	46	130	90	47	203	7.9	.59	16	.91
28	35	193	46	43	130	95	36	173	6.1	1.1	11	.82
29	58	197	43	39	---	90	23	210	4.9	59	8.4	.72
30	69	198	40	36	---	80	16	249	6.9	197	6.4	.66
31	69	---	38	33	---	100	---	265	---	109	5.2	---

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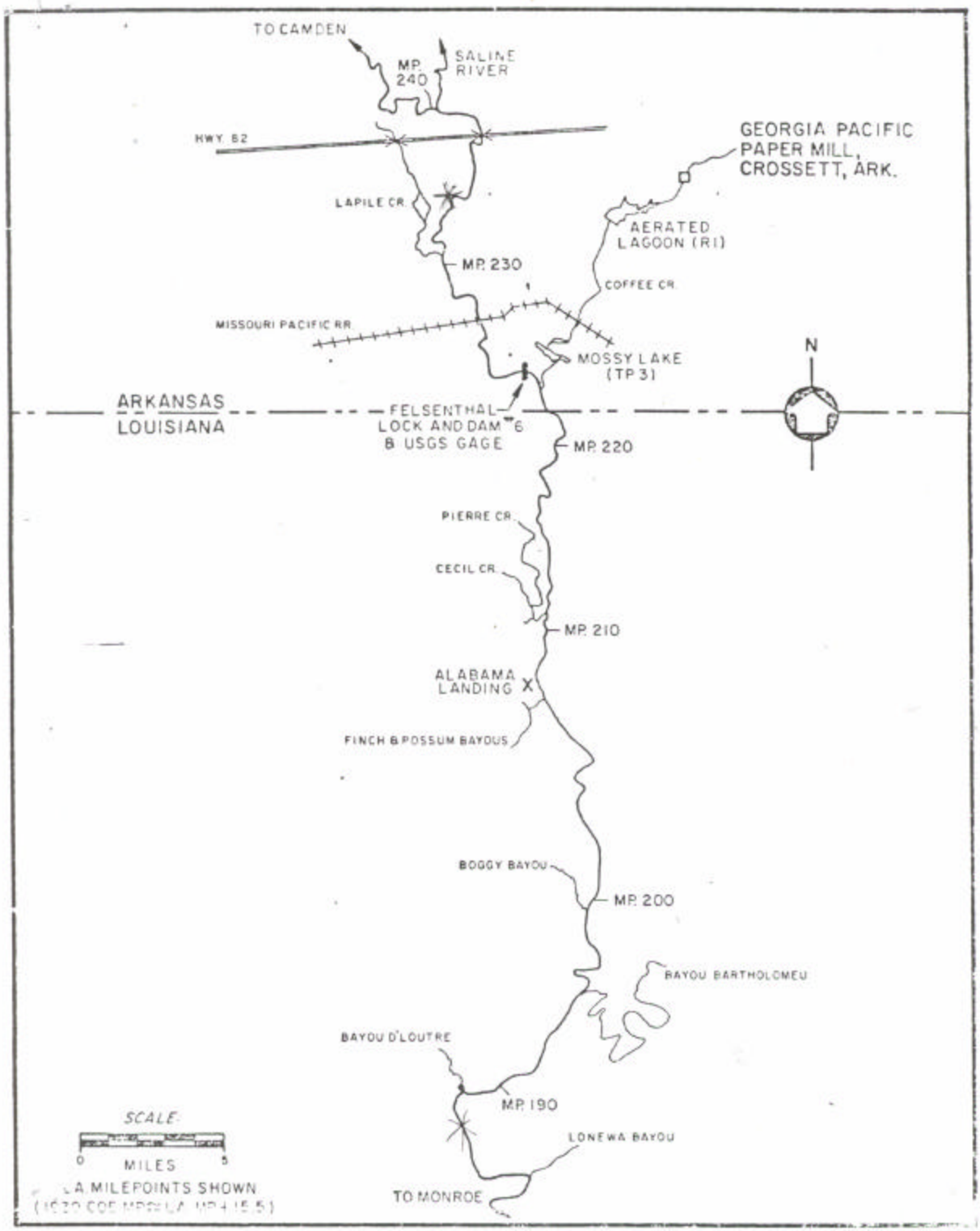

FIGURE 1

OUACHITA RIVER STUDY AREA

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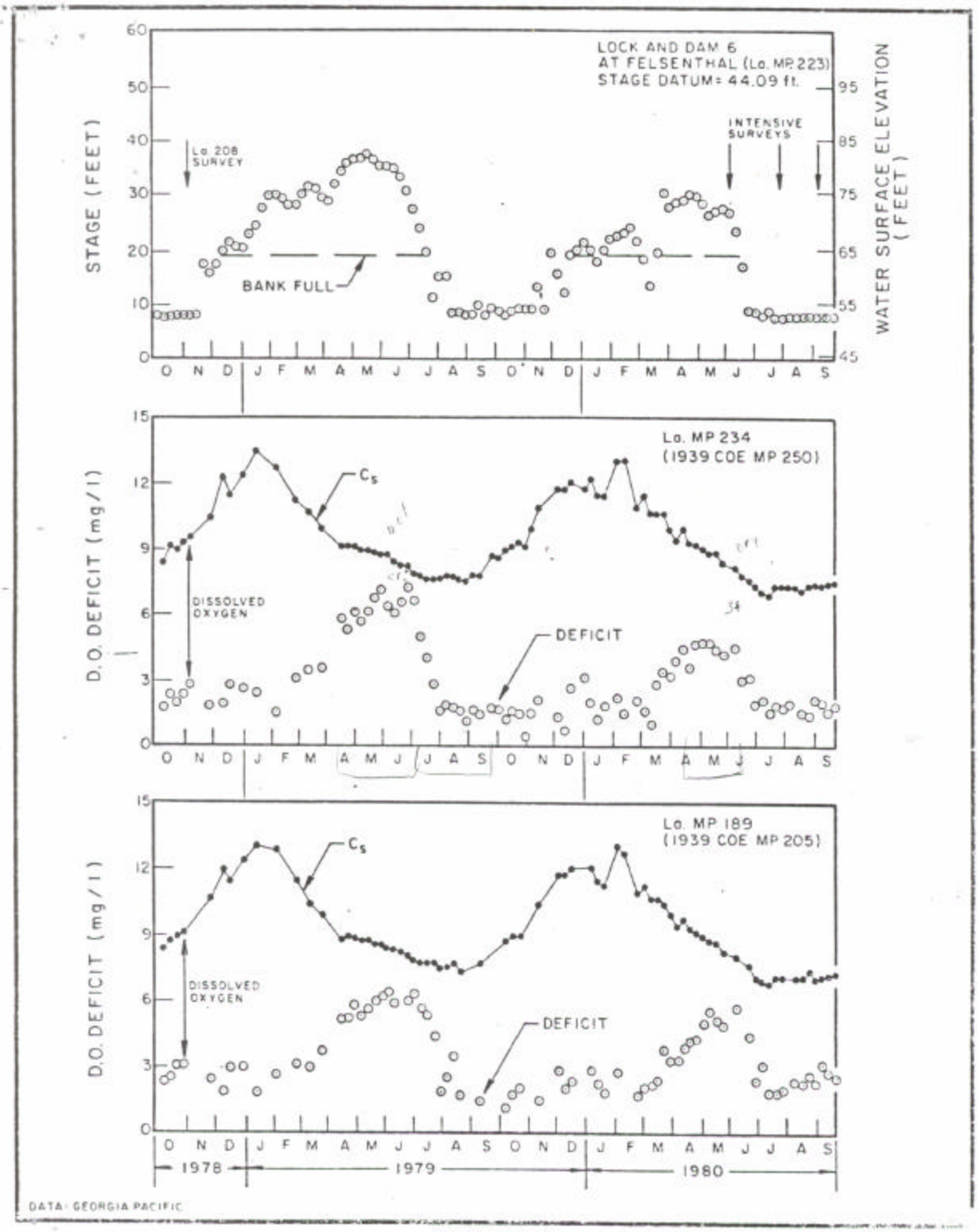

FIGURE 2

CHRONOLOGY OF QUACHITA RIVER STAGE AND D.O. DEFICIT, ROUTINE SURVEY DATA, 10/1/78 - 9/31/80

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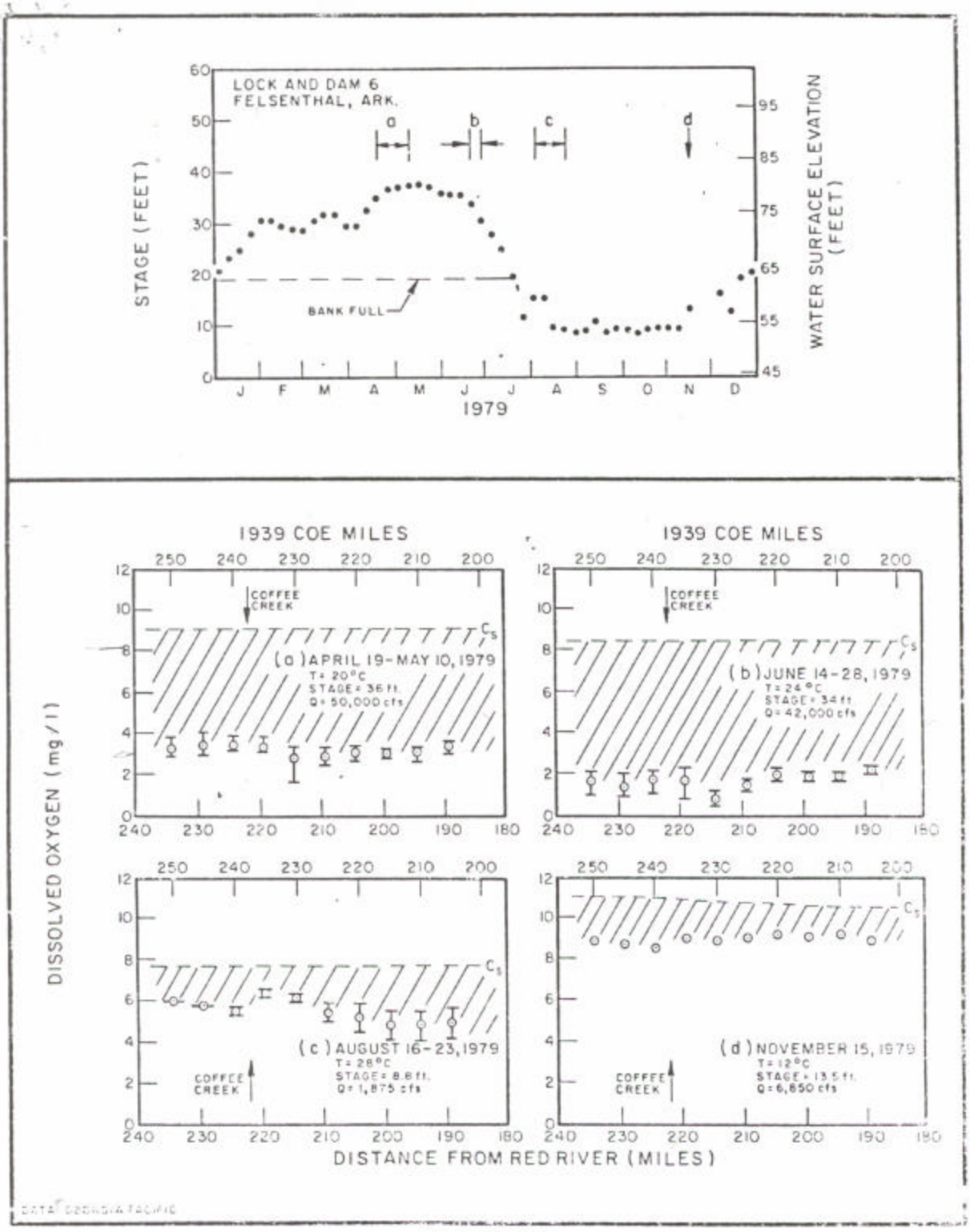

FIGURE 3

SPATIAL PROFILES OF DISSOLVED OXYGEN IN OUACHITA RIVER
1979 ROUTINE SURVEY DATA

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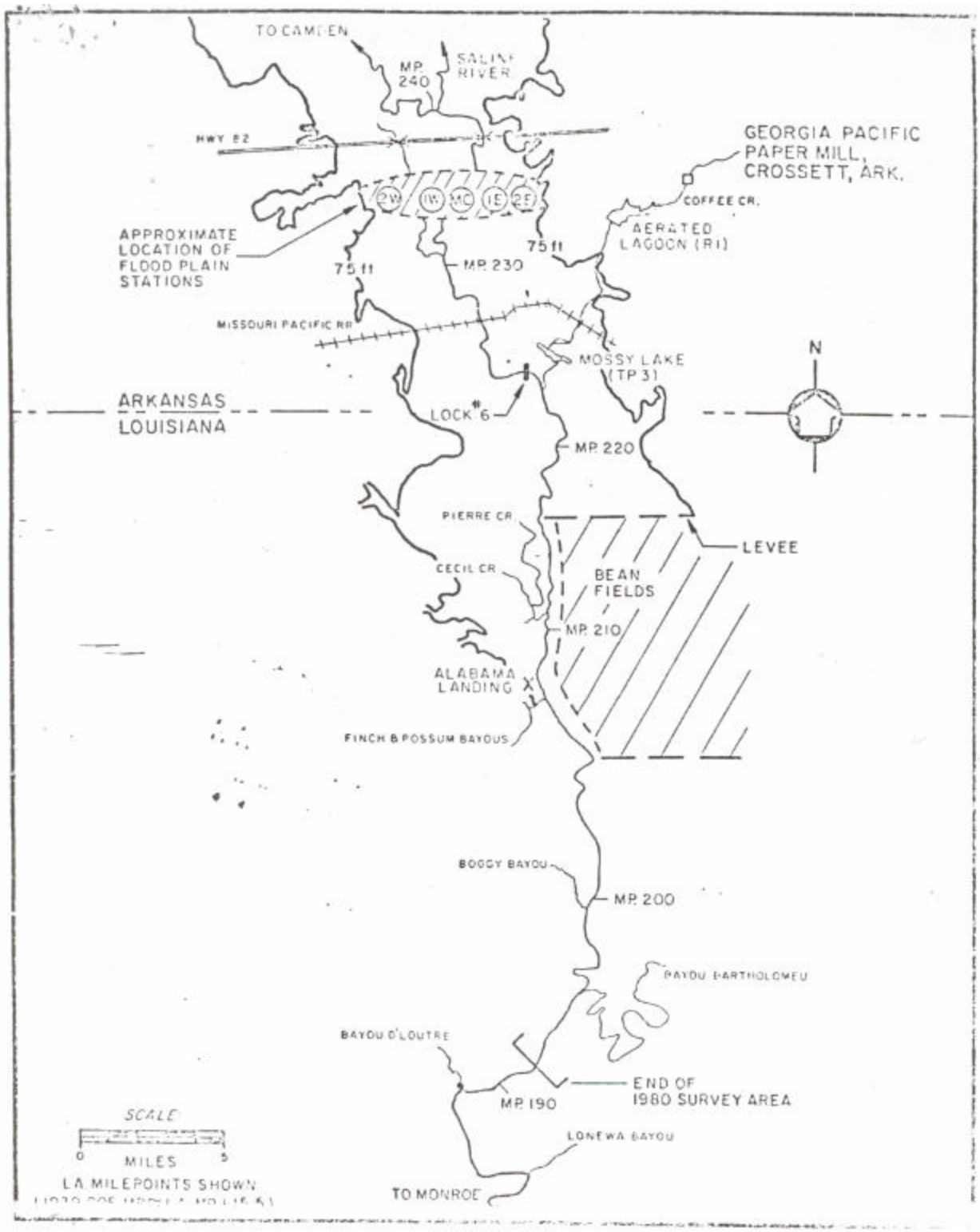

FIGURE 4

LOCATION OF FLOOD PLAIN SAMPLING STATIONS

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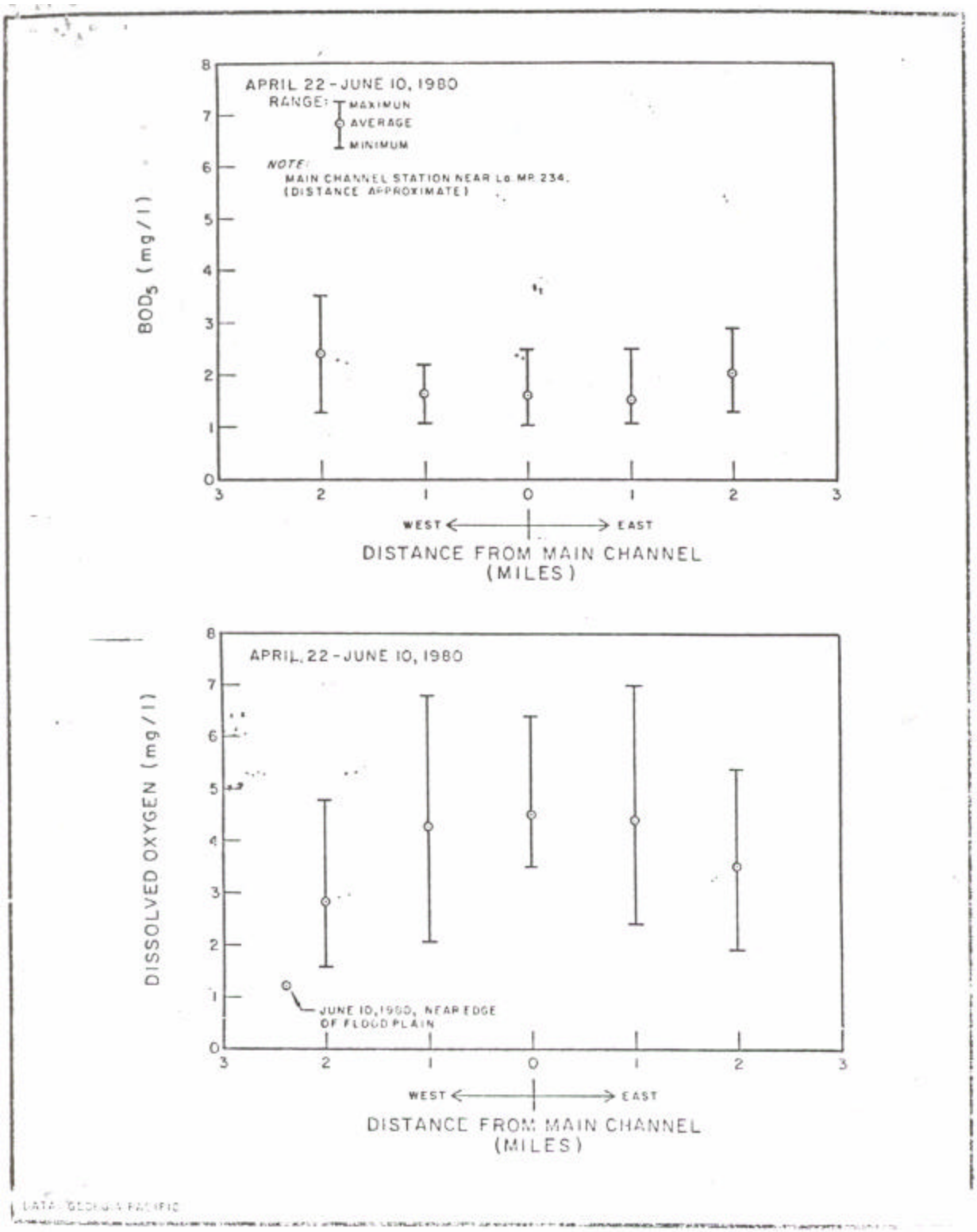

FIGURE 5

SPATIAL PROFILES OF BOD_5 AND DISSOLVED OXYGEN
EAST-WEST FLOOD PLAIN TRANSECT

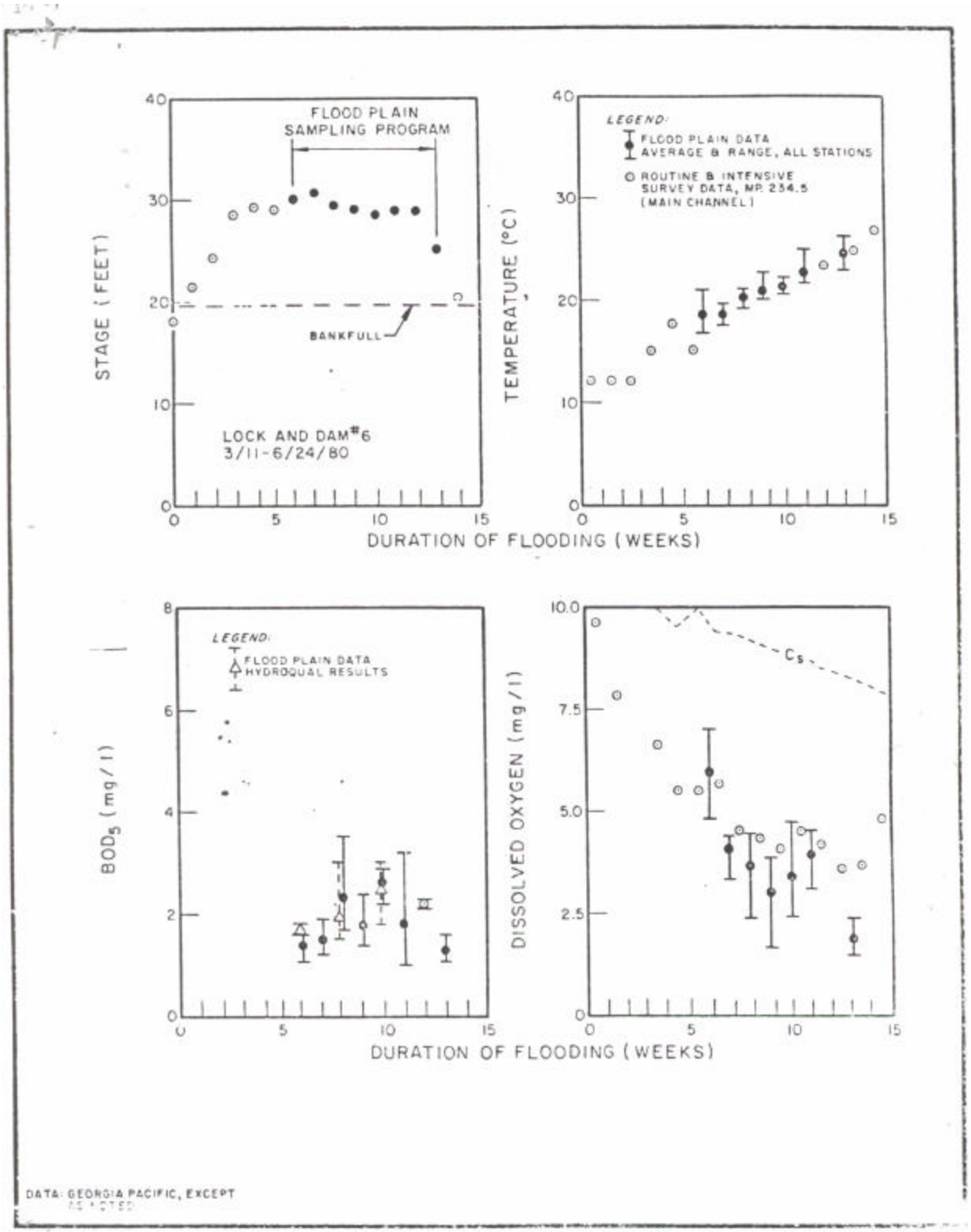

FIGURE 6

CHRONOLOGICAL PLOT OF FLOOD PLAIN
SURVEY DATA, MARCH 11 TO JUNE 24, 1980

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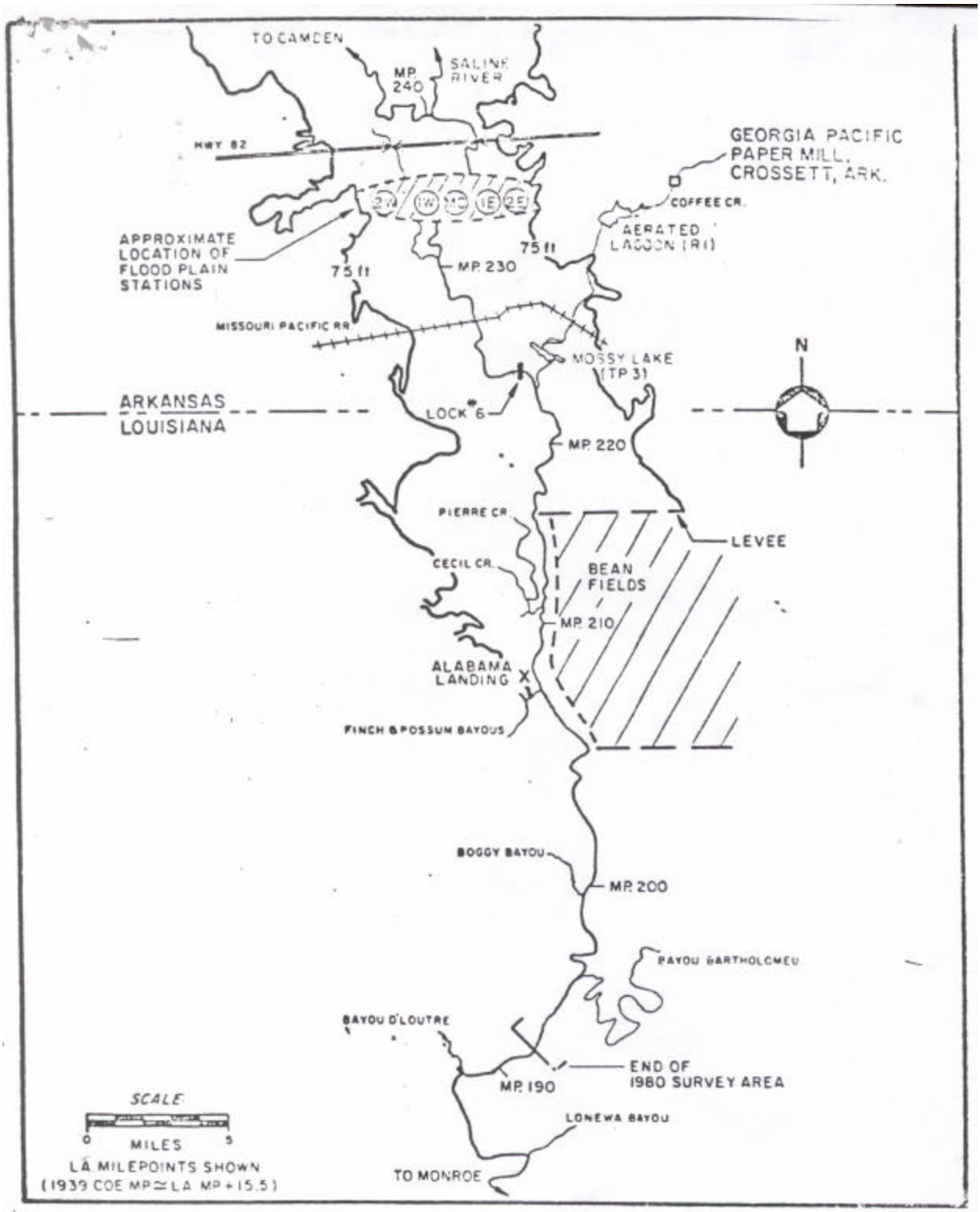

FIGURE 5

LOCATION OF FLOOD PLAIN SAMPLING STATIONS

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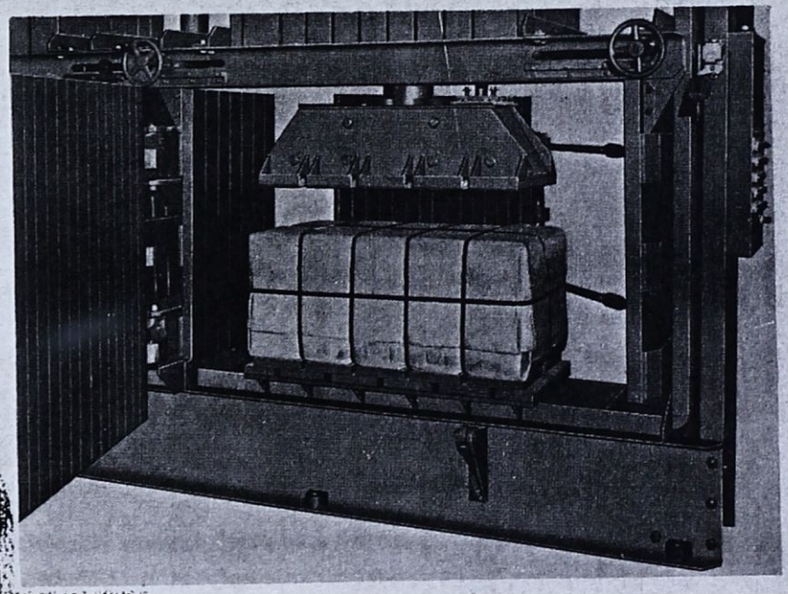

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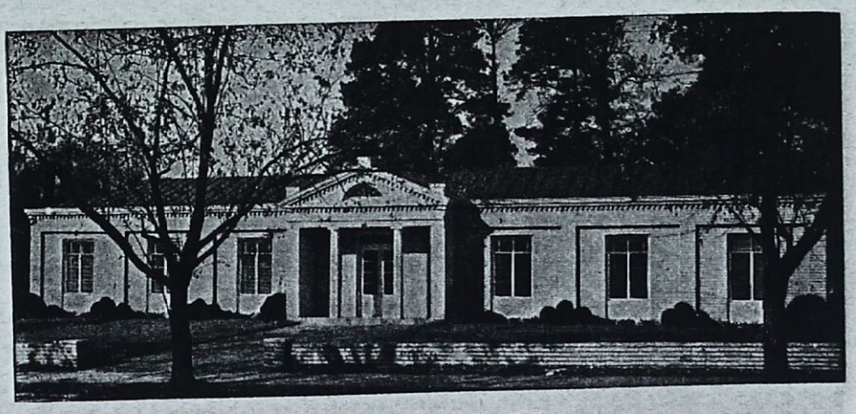

Executive and Editorial Offices
SOUTHERN PULP AND PAPER MANUFACTURER
75 Third St., N. W., Atlanta 8, Georgia

Merry Christmas *Happy New Year*

DECEMBER 10, 1956

Vol. 19 *No. 12*

In This Issue

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A Story of Water for Crossett Pulp and Paper Mills

By RAMON GREENWOOD
Director of Public Relations
The Crossett Company, Crossett, Arkansas

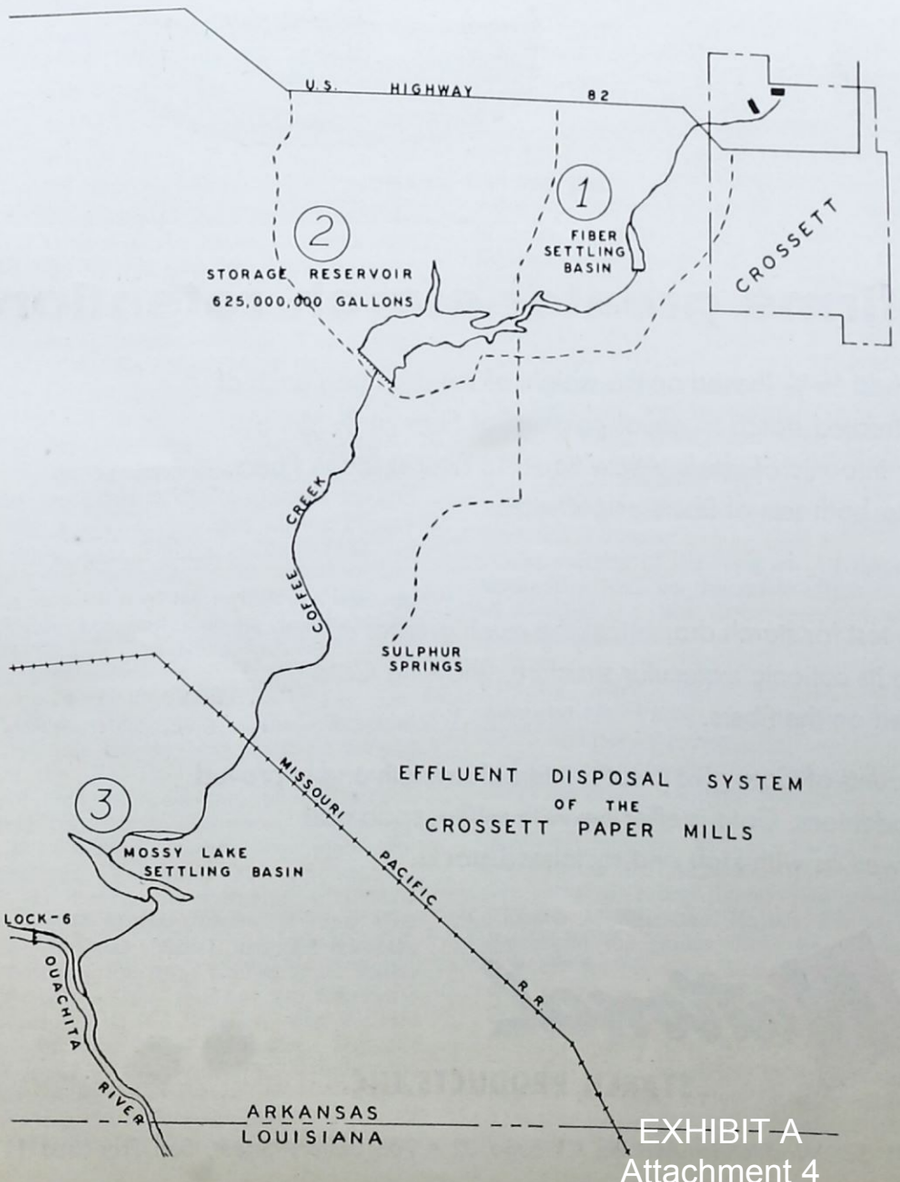
Water is perhaps the most necessary one of nature's many lavish bounties enjoyed by man. Without water, life would be a great deal different than we know it today—if life could exist at all.

Water means food, power, transportation, industry, recreation.

Americans drink more than 40 million gallons each day. The entire national requirement averages 170 billion gallons of water each 24 hour period. For each glass we drink, the economy needs 250 gallons to keep rolling.

Fifteen gallons of water go into your Sunday newspaper. Your favorite television hour costs a few pennies worth of electricity, but 80 gallons of water are used to generate that electricity.

On your Sunday drive, you average two miles to each gallon of water used in making your gasoline.



EFFLUENT DISPOSAL SYSTEM OF THE CROSSETT PAPER MILLS

Water for Paper

But nowhere in our life today is water more essential than in the pulp and paper industry. Paper cannot be made without water.

This fact means that The Crossett Company's paper mills require about 27 million gallons of water each day to produce 415 tons of kraft paper and 150 tons of bleached food board. It means that Crossett Paper Mills must have a steady source of water if production is to be maintained; it is just as certain that the mills must have a place to dispose of a like amount of waste water. To meet these realities, The Crossett Company devotes a great deal of time, money and effort.

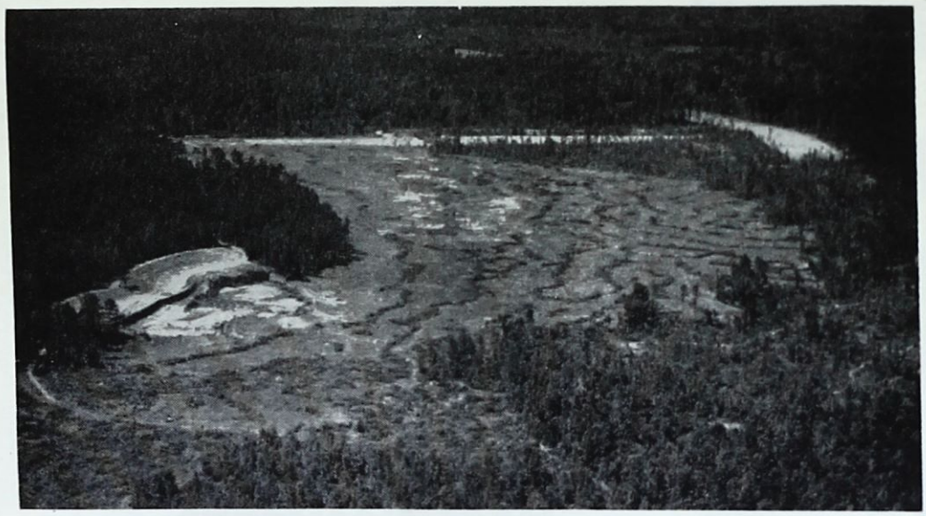
The source for this 27 million gallons daily requirement is 21 company owned water wells located in two well fields within a few miles of the plants. The production of these wells range from 500 to 600 gallons per minute each for some of the "old" wells, which were brought in during the 1930's to provide water for the Kraft Paper Mill, to the 2,000 gallons per minute production each of seven new wells established with the advent of the new Bleached Food Board Mill. These wells are from 135 to 227 feet deep. Both fields draw on what experts call a "great reserve of water."

Water from these two fields is piped to Crossett Paper Mills where it is run through giant reservoirs that hold almost two million gallons. Water for the Kraft process goes into the mill just as it comes from the ground, but about 75 per cent of that used in the bleached board production is processed through a huge water softening plant.

Once in the mills, water is used principally to wash the unbleached and bleached pulps and as a carrying agent.

The Kraft Mill requires about 12 million gallons of water each day or about 30,000 gallons for each ton of paper produced. Forty thousand gallons are required in the bleaching process for each ton of food board. Daily requirements for the Board Mill are 15 million gallons or about 100,000 gallons for each ton of bleached food board produced.

To be more specific, the water demanded at the Kraft Mill, for example, is used in two principal ways. More than 30,000 gallons of water are used to wash and remove the spent cooking liquor,



This aerial view shows in detail the layout of The Crossett Company's new $125,000 water impounding basin just completed on Coffee Creek. This basin, which will hold up to 625 million gallons of water, will provide an additional margin of safety in The Company's stream improvement program. To the right is the concrete spillway which will take care of overflow. Down the center can be seen the earth filled dam which stands about 20 feet high and 12 feet wide at the top. In the center of this dam are boxed culvert and gates to control the flow of water.

lignin and some cellulose from the eight tons of pine chips "cooked" into pulp in each digester batch. This washing is repeated on each of about 75 "cooks" a day.

Water is used as a carrying agent for pulp from this point until the wood fibers are joined together in strong enough bond to stand alone as paper.

When pulp has been washed it is diluted to one part pulp and 99 parts water so that everything but the perfect single fibers can be screened out for the paper machines. Following this screening process water is removed from the pulp which is then transported to the paper machines. At the machines, the pulp is diluted again to a 99 to one consistency and carried into the Fourdrinier machines. Water is removed from the pulp mixture in succeeding manufacturing steps until the fibers are joined in the form of paper.

The same water is used over and over, but ultimately some 27 million gallons of soiled water must be discharged from the mills each day.

Meanwhile, The Crossett Chemical Company, Crossett Lumber Company and city of Crossett are also requiring more than three million gallons of water. Some one million gallons are discharged from The Chemical Company to be carried away with the effluent from the paper mills.

Disposal of Water

At this point, The Crossett Company's concern with the water it brings into its manufacturing plants is far from dismissed, for now must be faced the problem of how and where to safely dispose of 27 million gallons of soiled water each day. The concern is now pollution control or stream improvement on the Ouachita River into which the disposal is made. It's a matter of river health.

Samples collected from the river must be put in cold storage until tests are made to determine the amount of oxygen being demanded by organisms in the water.

The major problem in stream improvement is the maintenance of a proper balance of oxygen in the water. The river, just as man, must have oxygen, but only in very small quantities when compared with our demand. A river in the best of health may contain no more than one pound of oxygen in 60 tons of water. By comparison, each of us inhales as much oxygen in a day as a million gallons of water contains. Actually, men live in an atmosphere in which one part in every five is oxygen, while a river's atmosphere has its free oxygen measured in parts per million.

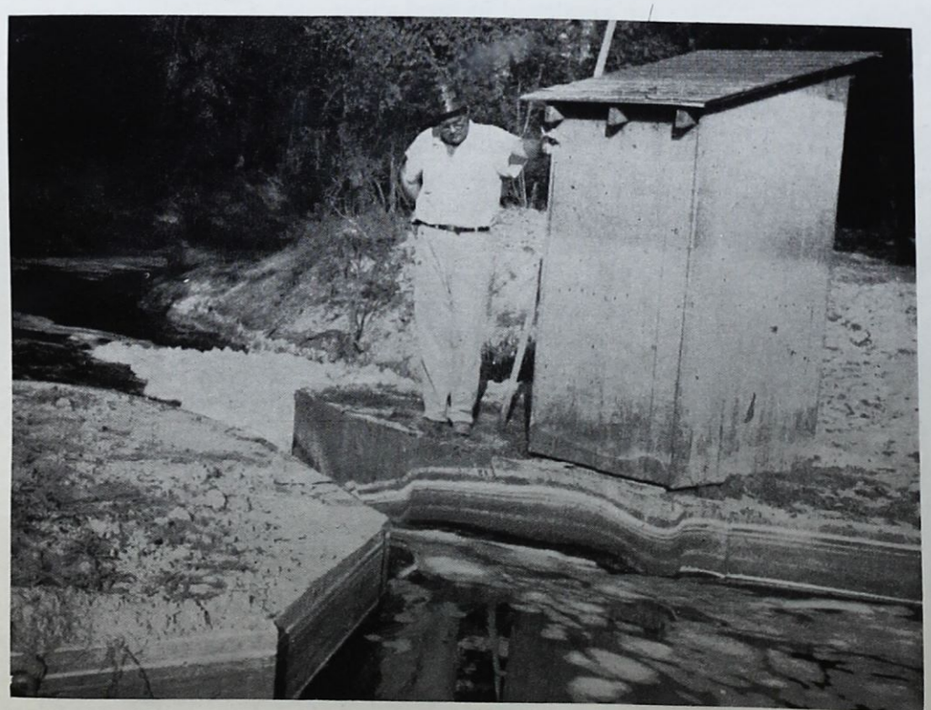
The water discharged from The Crossett Company's plants carries suspended and dissolved materials which eat up large amounts of oxygen from the water. If water containing these materials should be dumped into the river with no thought to stream improvement, some of the oxygen would be used up, endangering the health of the river and ultimately aquatic life. The idea is to satisfy as much of the appetite of these materials for oxygen as possible before the water is released into the river.

The Answer

Fortunately, The Company has the answer in fast moving Coffee Creek that winds its way for 15 miles across the countryside before it finally enters the big Ouachita River; in man-made impounding basins, flumes and gates constructed along the creek's circuitous route, and in a staff of highly skilled scientists who practice the art of river medicine.

These extensive facilities have just been further improved with the construction of a new $125,000 water hold-

(Please turn to Page 60)



Mr. Sadler is checking one of several flumes built along Coffee Creek. At these flumes his specialists are able to measure the flow of water and secure samples for testing.

A Story of Water . . .

(Continued from Page 54)

Jack W. Sadler, who heads a team of six stream improvement specialists for The Crossett Company, is shown adjusting the gates which control the flow of water out of Mossy Lake into the Ouachita River.

ing basin. This basin, which was completed early this month, will hold up to 625 million gallons of water in a 264 acre site about three and one-half miles from the mills. Plans also call for a fiber settling pool about the size of a football field to be located nearby.

In announcing the construction of these new facilities, The Company said that its anti-stream pollution facilities, "provide more than adequate effluent disposal service for existing production installations," and that the new facilities were constructed "because we want to assure the people of this area and ourselves of an additional margin of safety in our pollution control system."

The successful pollution control system works like this: The suspended materials which demand oxygen begin to settle out of the water just as soon as it leaves the mills. Almost all of the remaining materials leave the water in the first settling pool. The water is then allowed to flow into the impounding basin where it can be held up to 25 days. On the trip down Coffee Creek from the mills and in the basin the dissolved materials have had ample opportunity to feed on oxygen until almost all of the appetite is satisfied. Water is then released on a schedule determined by stream improvement specialists into Coffee Creek for the trip to Mossy Lake, a 175 acre holding basin near the Ouachita River which has been in operation since The Company first entered the pulp and paper business in 1937.

After further settling in Mossy Lake, the water is released into the river.

The River Doctors

The responsibility for the successful operation of this system is in the capable hands of scientists in The Company's Research Division. Six highly trained men under the direction of Jack W. Sadler, Research Chemist, conduct a running series of tests both on the river and in laboratories to determine the health of the water and to make certain that no materials released into the river can cause damage.

Three times a week, Mr. Sadler's crew makes a trip 29 miles down the broad, slow running river to Sterlington, La., to probe the river and gather samples for intensive study back in the laboratories. These tests, which amount to a taking of the river pulse, are made about two miles apart all the way down to Sterlington. They consist of examinations made on the spot to determine the amount of oxygen in the water and tests conducted in the laboratories to ascertain the amount of oxygen being demanded by organisms in the water.

River Doctor Jack W. Sadler is pictured making a test to determine the amount of oxygen in the water during one of the regular trips down the Ouachita River.

From these tests, the river doctors can determine the health of the river and how much water should be released from Mossy Lake. Findings are also supplied to federal and state authorities concerned with river health.

The Crossett Company concerns itself with more than the blessings and responsibilities of the best use of water in its own operating area. It has joined with the other paper producers of America to finance the progressive work of the National Council for Stream Improvement. This organization is devoted to the purpose of developing solutions to the industry's waste disposal and water utilization problems.

Some 12 million gallons of water are discharged from the Kraft Paper Mill through this gate each day. Stream improvement tests begin at this point.

Mississippi Pulp and Paper Co. Asks for Water Intake Permit

The Mississippi Pulp and Paper Co., of Columbus, Miss., has announced location of a $30,000,000 plant near here last summer, and has now made application to the U. S. Corps of Engineers for a water intake structure on the Tombigbee River.

Application for a permit for the structure was made to the Mobile office, and calls for a structure on the east bank, at mean low water line and dredging an area 10 feet deep, fronting the structure.

The plant is to be located on the river between Columbus and the Air Force base, approximately six miles northeast of the city.

ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY

LOCATION - SUBJECT 208 - Plan

MINUTE ORDER NO. 80-9

PAGE 1 of 1 PAGES

No comments were received on the initial 208 work plan at the public hearing which was held on December 17, 1979. The water quality standards (Chapter 6 of the Plan) are currently being revised and the silviculture section of Chapter 5 is presently being studied and evaluated by a special task force for possible revisions. The wasteload allocation studies for Segment 2D have not been performed and are the subject of a separate minute order at this meeting. The statement on page 339 of Chapter V of the 208 Plan which states that the State Health Department is the lead agency for subsurface disposal is being clarified so it will not be interpreted to include the underground injection control (UIC) program which is administered by this Department.

Considering the above the Commission hereby approves the initial Water Quality Management Plan with the exception of Chapter 6 and the Silviculture section of Chapter 5 which are conditionally approved until the abovenoted revisions and studies have been completed. The Commission also recommends to the Governor that he approve the Plan with conditional approval to be given to the items noted above.

COMMISSIONERS

SUBMITTED BY: Hugh G. Hannah DATE PASSED: 1-25-80

EXHIBIT B

ARKANSAS COMMISSION ON POLLUTION CONTROL AND ECOLOGY

PUBLIC HEARING

TO RECEIVE COMMENTS ON THE PROPOSED INITIAL STATE WATER QUALITY MANAGEMENT PLAN (208 PLAN)

and

PROPOSED INTERIM REVISIONS TO THE STATE WATER QUALITY STANDARDS

---o---

Arkansas Game and Fish Commission Auditorium
No. 2 Natural Resources Drive
Little Rock, Arkansas

Monday, December 17, 1979
1:03 p.m.

---o---

SANDRA J. PALMER
Certified Shorthand Reporter
North Little Rock, Arkansas
Certificate C-2083

---o---

EXHIBIT B

ARKANSAS COMMISSION ON POLLUTION CONTROL AND ECOLOGY:

JIM BROOKS, Agriculture, Chairman
JOHN SAXTON, Director, Soil and Water Resources Division, Vice Chairman, (not present)
CLYDE BROYLES, Industry (not present)
R. A. DUMAS, Oil and Gas Commission (not present)
BILLY FREE, Municipalities
BILL GRESHAM, Secretary
DR. ROBERT YOUNG, Arkansas Department of Health (not present)
NORMAN WILLIAMS, Geology Commission (not present)
RALPH WILLIAMS, Mining (not present)

---o---

J. M. McHANEY, Attorney at Law, First National Building, Little Rock, Arkansas

---o---

MEMBERS OF DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY:

JARRELL E. SOUTHALL, Director
BECKY BUCHANAN
WARREN BRAINARD
DAVE CRINER
RICH GARRETT
HUGH HANNAH
CYNTHIA JACKSON
JOYCE SADLER
DOUG SZENHER

---o---

I N D E X

---o---

A T T A C H M E N T S

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P R O C E E D I N G S

CHAIRMAN BROOKS: Ladies and gentlemen, we are here today to receive comments on the proposed interim revisions to the Arkansas Water Quality Standards and the proposed statewide water quality management plan, better known as 208.

My name is Jim Brooks. I am chairman of the Pollution Control and Ecology Commission. To my left is Mr. Jarrell Southall, our director. To his left is Mr. Billy Gresham, one of our commissioners representing the Forestry Commission. To his left is Mayor Billy Free who represents the municipalities on the Commission.

To my right is our counsel Mr. James McHaney.

I would like to at this time introduce some guests that we are honored to have. We have Miss Betty Woods from Senator Pryor's office. Welcome, Betty.

And Mr. Bill Black from the EPA. Welcome, Bill.

At this time Doug Szenher will read a statement.

MR. SZENHER: Chairman Brooks, members of the Commission, ladies and gentlemen, this is the public notice announcing both of today's hearings.

The Arkansas Commission on Pollution Control and Ecology will hold a public hearing December 17, 1979 to receive comments on the proposed initial state Water Quality Management Plan, 208 Plan, and proposed interim

revisions to the state Water Quality Standards. The hearing will begin at 1:00 p.m. in the state Game and Fish Commission Auditorium, No. 2 Natural Resources Drive, Little Rock.

The proposed 208 Plan is the final version of a draft document considered in a public hearing May 25 at Little Rock. The proposal developed according to Section 208 of the Federal Water Pollution Control Act and regulations adopted pursuant to the section outlines Arkansas' water quality management planning efforts for the first year of a 20-year plan to achieve national water quality goals as outlined in the federal law. The plan will be reviewed each year and will be revised as needed.

The proposed revisions to the state Water Quality Standards are being considered as an interim measure to deal with several areas needing immediate attention. The interim proposals do not affect plans for a major review of the existing standards, which is expected during 1980.

The proposed interim revisions involve adoption of standards for the discharge of certain toxic substances and the establishment of a policy regarding wastewater treatment requirements for discharge to intemittant or ephemeral streams, streams with little or no flow during certain times of the year, and establishment of temporary exemptions from the standards for Coffee Creek in Ashley

County.

Copies of the proposed final 208 Plan and the proposed interim revisions to the Water Quality Standards will be available after November 17, 1979 at information depositories in the following locations: Arkansas Department of Pollution Control and Ecology, 8000 National Drive, Little Rock; Clark County Library, 609 Caddo, Arkadelphia; White River Regional Library, 368 East Main, Batesville; Blytheville Library; Public Library of Camden and Ouachita County, 120 Harrison Southwest, Camden; Ozarks Regional Library Headquarters, 217 East Dickson, Fayetteville; Fort Smith Public Library, 61 South Eighth Street; Little Rock Public Library, 700 Louisiana Street; Magnolia Public Library, 220 East Main Street; Mena Public Library, 410 Eighth Street; Southeast Arkansas Regional Library, 233 South Main Street in Monticello; Mountain Home Public Library, West Seventh Street; City of Ozark Public Library, 407 West Market Street and West Memphis Public Library, Avalon and Olive Streets.

Oral statements will be heard at the hearing, but for the accuracy of the record all comments should be submitted in writing at the time of the hearing.

Dated the 7th day of November 1979. Signed, Jarrell E. Southall, Director of the Arkansas Department of Pollution Control and Ecology.

EXHIBIT B

(See Attachement 1.)

MR. SZENHER: This notice was published in two newspapers of statewide circulation.

In addition, information regarding the hearing was sent to members of the Legislative Council, the state Policy Advisory Committee on Environmental Management Planning, the Management Advisory Committee, the Commission on Pollution Control and Ecology; the federal Environmental Protection Agency.

Also statewide news release announcing the hearing was sent to approximately 300 news outlets consisting of newspapers, radio and television stations throughout Arkansas.

(See Attachment 2.)

MR. SZENHER: Thank you, Mr. Chairman.

CHAIRMAN BROOKS: Thank you, Doug.

It is my understanding that this hearing is going to be split in two segments: one, which will be first will be the 208 Plan and the second is the Water Quality Standards. Is that correct?

MR. SOUTHALL: Yes.

CHAIRMAN BROOKS: Okay.

Mr. Hugh Hannah would like to make a statement now.

MR. HANNAH: I will just address these remarks

to the first part of the hearing. I will have some more for the Water Quality Standards when it comes up.

This initial 208 Plan constitutes Phase I of the 208 planning process.

As many of you are aware, an initial public hearing was held on this plan on May the 25th, 1979. At that time it was noted that a future hearing would be necessary because of the unavailability of certain supporting documents which led to some of the conclusions in the plan. This information has now become available and was placed in depositories throughout the state for review.

Also changes made to respond to public comments at the first hearing as well as to address EPA comments have been incorporated into the plan which was placed in the depositories November 16, 1979.

The first hearing was held to meet certain requirements of federal law and regulations, and the submission was known to be incomplete. Since that time the changes incorporated are intended to provide enough information to satisfy the conditions for initial acceptance of the plan.

Chapter VI of the plan contains a proposed revision to the Water Quality Standards which was written before the interim water quality regulations, which are the subject of a separate hearing today, were formulated and

which were placed in the depositories at the same time as the plan material.

Chapter VI therefore is superseded by the standards proposed in the next hearing. As will be explained in that hearing, these interim standards will be subject to even further revisions in the next few weeks.

Continued updating and improving of the plan is contemplated.

A hearing was held November 7, 1979 on a workplan for utilization of 1979 funds. Another hearing will be held on a further workplan in the early part of 1980 for expenditure of 1980 funds.

Implementation of nonpoint source best management practices and continued elimination of point source pollution will follow the acceptance of this initial plan.

The future information developed will provide for more complete knowledge of the cause-effect relationship in many instances and consequently may lead to technological advances that are not presently utilized.

As future revisions and changes are incorporated they will be subjected to further public hearings similar to the one here today.

Thank you for your attendance and any comments which you may wish to make.

(See Attachment 3.)

CHAIRMAN BROOKS: Thank you, Mr. Hannah.

The first party wishing to comment is Mr. John Powell representing Union Carbide Corporation.

MR. POWELL: Mr. Chairman, I would like to speak in the water quality phase rather than the plan. Although my comments are for both, they are predominately for the water quality.

CHAIRMAN BROOKS: Okay.

MR. POWELL: I will speak either way, whichever suits you.

DIRECTOR SOUTHALL: You want to speak on the standards rather than the 208 Water Quality Plan?

MR. POWELL: Yes.

DIRECTOR SOUTHALL: We will just waite.

CHAIRMAN BROOKS: We will hold this in abeyance, I guess.

Are there any others who would like to speak on the 208 Plan?

(No response.)

CHAIRMAN BROOKS: Okay. Mr. Hannah, then you wanted to read another statement for the Water Quality Standards.

MR. HANNAH: The Water Quality Standards which are the subject of this hearing are considered by the department to be interim standards. In fact, a more

extensive revision which more distinctly defines procedures and use classifications is currently partially completed and should be ready for a further hearing within the next few weeks.

These standards also differ considerably from the proposed standards included in Chapter VI of the 208 Plan which were proposed much earlier than this current version.

The purpose of these interim standards is to provide the department with a mechanism to deal with critical problems that require immediate action in order to maintain an orderly program in construction grants and permitting, two of the more important functions of the water division.

Very briefly, the proposed changes encompass three items as follows.

One. Attachment I, which would exempt Coffee Creek, the receiving stream for Georgia-Pacific wastewaters from certain criteria as currently defined in the standards because of the intermittent, ephemeral and manmade nature of certain portions of the stream.

It would provide for protection from nuisances, health hazards, taste and odor, solids, floating materials and deposits of toxic materials in quantities that would be toxic to human, animal, plant or aquatic life or would

cause interference with normal propogation of aquatic life. The justification for this change, Attachment II, is based upon the contingent that Coffee Creek was misclassified in the original standards.

Attachment III, specific criteria for seven listed materials, this is intended to be a start toward setting limits on other toxic materials as better information and technology becomes available. The limits are set on detection limits that can be accomplished by the chemistry laboratories of the department.

Attachment IV, a standard for intermittent and ephemeral streams as well as drainage ditches which would permit the department more flexibility for setting effluent requirements necessary to protect these streams for existing instream water uses as well as protection of downstream water uses, protection of subsurface waters and to prevent a public health hazard.

The above provision should provide water quality protection for existing uses of the receiving stream or streams, yet provide for several million dollars in economics to some of the municipalities which are presently faced with extremely high levels of treatment under existing standards.

It is recognized that a procedure for defining and evaluating these streams must be developed, and this will be a part of department activities over the next few

weeks.

Thank you for your attendance and any remarks you would care to make.

(See Attachment 4.)

CHAIRMAN BROOKS: Thank you, Mr. Hannah.

We would now receive comments on these standards. Mr. John S. Carter of Georgia-Pacific.

MR. CARTER: Thank you, Mr. Chairman. My name is Johnny Carter. I am environmental control supervisor for the Crossett paper operation of Georgia-Pacific Corporation. We appreciate the opportunity to comment on the proposed changes to the water quality standards in Regulation II.

I would like to introduce Jim Garrett who is an attorney who was hired to help in this presentation today.

First I would like to comment on the proposed justification language with the exception of Coffee Creek from the specific criteria applicable to Class B stream and all general criteria.

It should be recognized that replacement criteria, which Mr. Hannah mentioned, have been provided for in the justification document.

Allow me to refresh your memory and provide an historical background for Georgia-Pacific's comments. We

first began using Coffee Creek in 1937 when the papermill began its operations in Crossett.

In Exhibit 1, which is attached to your right up here, there is a map of the Coffee Creek Mossy Lake system.

In the beginning this Coffee Creek and the Mossy Lake area provided adequate treatment for the effluent and the paper operations with some smaller dams added on the lower end of Mossy Lake. These dams were installed by the Crossett Company or by the Georgia-Pacific -- later Georgia-Pacific.

And as the operation in Crossett operations got larger or expanded it was necessary to expand this Mossy Lake and Coffee Creek system. Our first major change came in 1956 with the addition of the R-1 basin. That is this basin here (referring to drawing). This was made by forming a dam across the Coffee Creek.

When this retention and stabilization basin started filling with solids in the upper end, it became apparent that a solids removal system would be required. Consequently, two earthen settling basins were constructed adjacent to the Coffee Creek in that area. And they were successful in taking the suspendable solids from the effluent,

As further expansion and more stringent regulations came about it was necessary to upgrade the system again, and

the next step was completed in 1970 with the addition of a 300-foot diameter clarifier in this area and 15 50-horsepower aerators in the area of the lagoon thereby converting the stabilization to an intermediate stabilization basin.

Subsequently more aeration has been added to the basin as needed to meet the regulations, and the current level now is 18 75-horsepower.

In support of the department's staff's justification for the exception of Coffee Creek I would like to present the following exhibits.

Of course, Exhibit 1 is this drawing here.

Exhibit 2 is a series of photographs with the dry stream bed portion in this area taken where the original channel has been abandoned and along here below R1 these photographs demonstrate the intermittent nature of the stream, and they show that the stream bed is dry.

Second, Exhibit 3 contains flow data for August, September and October of 1979. These show that during August 47.4 milligrams per day of effluent was discharged in the R1 basin.

At that same period 48 million gallons was discharged in Mossy Lake.

In September the flow from R1 was 47.9 and from Mossy Lake 48.5.

In October the discharge in R1 was 46.5 and

Mossy Lake it was 45.6 milligram per day.

Since there is no significant difference in the flows leaving R1 and that entering the river, we submit there is support for the department's finding that the flow in Coffee Creek, except for treated wastewater, is intermittent or ephemeral in nature.

Exhibit 4 shows that the biochemical oxygen demand levels leaving our aerated lagoon has decreased each year for the last five years.

The following average concentrations of BOD are for each year. 1975 the average annual BOD concentration leaving the area of the lagoon was 76 parts per million; 1976, 70 parts per million; 1977, 47 parts per million; 1978, 33 parts per million; 1979, the first 10 months of 1979 was 26 parts per million.

In addition to these observations we would like to call your attention to an error that exists on the graph of the BOD levels in the Coffee Creek plot which was attached to the state's proposed justification document on the BOD plot.

As you can see, the numbers used in preparing the graph were generally uniform decreases with one very notable and obvious exception, and that number was reflected in early 1976 and should have been recorded as greater than 63, but instead was interpreted by the programmer as 763.

With that correction the graph will clearly illustrate the improving water quality for the BOD criteria over the past five years.

At this time I would like to submit as Georgia-Pacific's Exhibit 5 these photographs which were attached to the state's proposed justification document as evidence of the improving water quality in Coffee Creek in the past five years, which in turn reflects the improved levels of treatment which are being achieved by Georgia-Pacific at Crossett.

Exhibit 6 contains an analysis of samples that were taken from three areas on the abandoned Coffee Creek channels, that is, in the area below here.

In all three places the level of oxygen, of dissolved oxygen, is two parts per million or lower. This substantiates Georgia-Pacific's position that Coffee Creek was never of Class B quality and therefore could never achieve Class B standards.

In 1959 sodium analyses were made on water levels in three different locations surrounding the area of the lagoon, the R1 basin here. Levels of sodium were found to be 83, 26 and 32 parts per million on some observation wells at that time.

The wells in this same vicinity were sampled again in 1979 and the levels of sodium were 28, 17 and 20

respectively, in each case showing a reduction in sodium ion content.

Exhibit 7 indicates that the groundwater contamination is not occurring on Georgia-Pacific's wastewater treatment system since the sodium ion level concentrations were lower in all three areas.

Sodium concentrations would increase if the effluent, which is a high sodium effluent, was percolating into the groundwater.

EPA recently directed that compliance with the effluent limitations be measured at the point of discharge from R1, taking into account normal deviations within the mixing zone.

While Georgia-Pacific disagrees with the EPA directive and has made this one of the objectives or subjects of an ajudicatory hearing, it submitted that evidence supports the state's determination that Coffee Creek is intermittent in nature and therefore the absence of a continuous flow in Coffee Creek, rather than treated wastewater precludes mixing in any area of the creek.

It is further submitted that the mixing zone should be designated as some area contiguous to the mouth of Coffee Creek at its point of confluence with the Ouachita River.

At this time I want to recognize some people

that came up from Crossett and Ashley County who are here today in support of Georgia-Pacific's effort to have the exception granted for Coffee Creek.

If you would stand when I call your name, please. Tom Streetman. Tom is president of the Crossett Chamber of Commerce. Mayor Vaskell Carter, the City of Crossett. Ashley County Judge Johnnie Bolin.

These gentlemen and various other citizens of Crossett and Ashley County, people they represent, have been actively working with G-P for many months to help resolve the Coffee Creek issue.

Finally, we wish to comment that our review of Attachment IV, we are now leaving the exception language and going to the Attachment IV of the proposed revisions to the Arkansas Water Quality Standards, regulation two, reveals a potential ambiguity between Subsection (c)(3)(A) and Subsection (c)(3)(C).

The possible conflict between these provisions could be resolved by modifying the latter, (c)(3)(C) to read as follows. "Existing instream uses are (i) those beneficial and demonstrable uses of a stream which are currently being attained or which have been attained during the preceding five years, or (ii) those which are assumed under Subsection (c)(3)(A) above; and includes such uses as a raw water source for public, industrial or agricultural

water supplies; primary or secondary contact recreation; and protection and propogation of fish, shellfish and wildlife."

Mr. Chairman, I will be happy to try to answer any questions.

MR. GARRETT: If I could at this time I would like to introduce the original exhibits that I have copies of and ask that it be entered into the record.

(See Attachment 5.)

CHAIRMAN BROOKS: That will be fine.

Does anyone have any questions?

(No response.)

CHAIRMAN BROOKS: Mr. John Powell representing Union Carbide Corporation.

MR. POWELL: I am John Powell with Union Carbide in Hot Springs, Arkansas, where Union Carbide has a mining operation.

I would like to comment today on the plan as it relates to the Water Quality Standards. The comments that I am making today are basically a reiteration of those same ones we made in May, but I would like to bring them to the attention of the Commission.

One problem we see in the plan as it relates to the Water Quality Standards as proposed originally was that major changes, significant changes, can be made in the

standards without the benefit of a hearing or public comment because of certain phrases that were put into the Section 5(k).

We request that the requirement for a hearing and public comments must be spelled out in the Water Quality Standards themselves.

The plan also under Chapter VI establishes guidelines for instream standards and processed effluent standards.

I am sure that most of us are aware that guidelines turn into regulations very easily, and it is our feeling that these guideslines, the rationale for establishing them, must be expressed someplace. They could not just be included or referred to the Red Book.

Also, using the guideline concentrations in turn to determine the maximum permissible concentrations and effluents discharged to sewers and streams is not a satisfactory procedure in our view. It fails to take into account the nature of the discharge and/or the nature of the receiving water.

We suggest that the effluent guidelines be deleted from the water quality management program and effluent standards be determined by the department on a case-by-case basis after due consideration of all factors are given.

Guideline values for maxium permissible metals to be discharged into sewers and streams. There appears to be an error in the list, because if one reads what is there, anybody that has got an effluent discharge, like an industry or municipality, the fish have to live in the discharge. And our rationale is explained here. I won't go into that in detail.

The third item we wish to have clarified is the guideline limits specified for ammonia. We make reference in our written statement to the fact that these limits we believe are incorrect and should be changed, and we request the department to review the references we state -- we quote.

The instream guideline for ammonia is given as .02 milligrams of N per litre.

And we indicate that this is no longer an accepted value for all waters based on research done since the completion of the publication of the Red Book, and we also make some references to that literature and propose the following limits for ammonia. This is unionized ammonia in microgram of N per litre. We suggest the value of 20 be held for trout and cold water streams and that a value of 100 be adopted for small mouth bass or warm water streams.

That is the major comments I have. If anybody

has any questions I would be glad to answer them.

(See Attachment 6.)

CHAIRMAN BROOKS: Any questions?

(No response.)

CHAIRMAN BROOKS: Thank you, Mr. Powell.

Mr. Dennis Massey of the City of Decatur.

MR. MASSEY: Gentlemen of the Commission, I am Dennis Massey, the Mayor of Decatur, Arkansas. I wish to make a few comments as to the revision of the plan.

We support the Attachment IV to the referenced publication with the following exceptions.

Regarding Section (c)(1)(C), we believe an unacceptable health risk is involved in tasting water from drainage ditches or intermittent stream basins where at times the flow is comprised solely of a treated wastewater effluent. Therefore we believe the word "taste" should be deleted.

Regarding Section (c)(1)(D), we believe this to be redundant and tending toward causing confusion rather than aiding in the solution of the problems. Therefore, the Subsection (D) should be deleted.

Regarding Section (c)(3)(D), we believe this subsection is redundant and should be deleted.

We are appreciative of the effort that has gone into the preparation of this proposed revision at issue as

a very complex problem of regulation.

Unnecessary restriction has potential profoundly adverse economic impact ramifications for much of the state.

We urge deliberation and flexibility in arriving at desirable controls. Thank you.

(See Attachment 7.)

CHAIRMAN BROOKS: Thank you, Mayor Massey.

Mr. Gene Reece of the Crafton, Tull and Associates representing the City of Decatur.

MR. REECE: Mr. Brooks, and Commission members, the proposed revisions place to a certain extent first and foremost considerations which under some circumstances are largely aesthetic. An implied secondary significance is assigned to the protection of people from injury.

We concur that aesthetic considerations are important and desirable to the extent to which they can be afforded.

We totally support the effort to improve Regulation No. 2, Section 4(c) as embodied in the proposed revisions of Attachment IV or Attachment IV to the proposed revisions.

We are convinced that arriving at workable controls involves a certain amount of trial and error. Further refinement may be necessary and we believe should be a part of the process of regulatory development.

At this time we support the proposed Section 4(c) revisions with the following exceptions.

In Subsection (c)(1) we believe that the term "substances or materials" adequately defines the problem source and that the following words should be deleted. Those words are "including floating debris, oil, scum and other matter."

In Subsection (c)(1)(C), we believe the word "taste" should be deleted since it is unreasonable to expect that people would taste drainage water or water in an intermittent stream basin which is comprised solely or substantially of a treated wastewater effluent.

We believe Subsection (c)(1)(D) is an unnecessary complication, that such concern is adequately accommodated otherwise and therefore should be deleted.

Finally, we believe that Subsection (c)(3)(D) will prove to be contradictory to Subsection (2) -- I am sorry, Subsection (c)(2), and in practice set its own standard as well as result in substantial confusion placing an unnecessary burden on the Commission, on the ADPCE staff and on dischargers to these basins. Therefore we believe that Subsection (c)(3)(D) should be deleted or substantially modified.

We will be pleased to elaborate further should that become necessary. Thank you.

(See Attachment 8.)

CHAIRMAN BROOKS: Thank you, Mr. Reece.

Mr. Bob Bogard representing the Arkansas Federation of Water and Air Users.

MR. BOGARD: Mr. Chairman, members of the Commission, my name is Bob Bogard. I am executive director of the Arkansas Federation of Water and Air Users, Inc., an industrial environmental association.

We are grateful for this opportunity to comment on the proposed revisions to the Arkansas Water Quality Standards Regulation No. 2.

The Federation of Water and Air Users is a private, nonprofit membership organization dedicated to efficient management of our natural resources and protection of our environment. Our membership is comprised primarily of industries that have operations in Arkansas and which hold one or more environmental permits from the Department of Pollution Control or the Environmental Protection Agency or both. Current membership numbers more than 140 representing some 200 separate and distinct industrial operations throughout the state.

The Water Quality Committee of the federation has reviewed the proposed revisions to the Water Quality Standards Regulation No. 2. The federation wholeheartedly supports the proposed revisions and strongly urges the

Commission to adopt them.

We believe the revisions offer a realistic approach and will preserve the state's water quality while at the same time providing the flexibility needed by the regulatory body to allow for continued economic and industrial growth that is compatible with environmental protection.

The proposed justification for the exception to Coffee Creek speaks for itself. The exception is duly justified and we believe long overdue.

The intermittent stream policy is something that the state has needed for a long time, and we are glad to see it.

The Federation of Water and Air Users wishes to commend the staff of the Department of Pollution Control and Ecology for forging ahead with these revisions to the Water Quality Standards.

We appreciate this opportunity to comment on the proposed regulations. Thank you very much.

(See Attachment 9.)

CHAIRMAN BROOKS: Thank you, Mr. Bogard.

Is there anyone else wishing to comment?

(No response.)

CHAIRMAN BROOKS: Anyone up here wish to comment?

(No response.)

CHAIRMAN BROOKS: Thank you, ladies and gentlemen, for coming out and giving us your views.

I guess we will adjourn.

(Whereupon, at 2:44 p.m. the above-entitled hearing was concluded.)

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C E R T I F I C A T E

I, Sandra J. Palmer, a Certified Shorthand Reporter, do hereby certify that the matters contained herein concerning the public hearing before the Arkansas Commission on Pollution Control and Ecology were taken by me in machine shorthand and were thereafter reduced to typewritten form by me or under my direction and supervision; that the transcript is a true and correct record, to the best of my understanding and ability, of the proceedings had at the time and place aforementioned.

Sandra J. Palmer, CSR

---o---

EXHIBIT B

PUBLIC NOTICE

The Arkansas Commission on Pollution Control and Ecology will hold a public hearing December 17, 1979, to receive comments on the proposed initial state Water Quality Management Plan (208 Plan) and proposed interim revisions to the state Water Quality Standards. The hearing will begin at 1:00 p.m. in the state Game and Fish Commission auditorium, No. 2 Natural Resources Drive, Little Rock.

The proposed 208 Plan is the final version of a draft document considered in a public hearing May 25 at Little Rock. The proposal, developed according to Section 208 of the Federal Water Pollution Control Act and regulations adopted pursuant to the section, outlines Arkansas' water quality management planning efforts for the first year of a 20-year plan to achieve national water quality goals as outlined in the federal law. The plan will be reviewed each year and will be revised as needed.

The proposed revisions to the state Water Quality Standards are being considered as an interim measure to deal with several areas needing immediate attention. The interim proposals do not affect plans for a major review of the existing standards, which is expected during 1980.

The proposed interim revisions involve adoption of standards for the discharge of certain toxic substances; establishment of a policy regarding wastewater treatment requirements for discharge to intermittent or ephemeral streams (streams with little or no flow during certain times of the year); and establishment of temporary exemptions from the standards for Coffee Creek in Ashley County.

Copies of the proposed final 208 Plan and the proposed interim revisions to the Water Quality Standards will be available after November 17, 1979, at information depositories in the following locations:

Arkansas Department of Pollution Control and Ecology, 8001 National Drive, Little Rock
Clark County Library, 609 Caddo, Arkadelphia
White River Regional Library, 368 E. Main, Batesville
Blytheville Public Library, 200 N. Fifth
Public Library of Camden and Ouachita County, 120 Harrison SW, Camden
Ozarks Regional Library Headquarters, 217 E. Dickson, Fayetteville
Fort Smith Public Library, 61 S. Eighth
Little Rock Public Library, 700 Louisiana
Magnolia Public Library, 220 E. Main
Mena Public Library, 410 Eighth
Southeast Arkansas Regional Library, 233 S. Main, Monticello
Mountain Home Public Library, West Seventh Street
City of Ozark Public Library, 407 W. Market
West Memphis Public Library, Avalon and Olive Streets

Oral statements will be heard at the hearing, but for the accuracy of the record, all comments should be submitted in writing at the time of the hearing.

Dated this seventh day of November, 1979

Jarrell E. Southall, Director
Arkansas Department of Pollution Control and Ecology

EXHIBIT B

Exhibit 2

STATE OF ARKANSAS
DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
8001 NATIONAL DRIVE
LITTLE ROCK, ARKANSAS 72209

NEWS RELEASE

Contact: Doug Szenher
Information Officer
(501) 371-1701

For release on or after:
December 9, 1979

WATER QUALITY STANDARDS, MANAGEMENT PLAN TOPICS OF PUBLIC HEARING

The Arkansas Commission on Pollution Control and Ecology will hold a public hearing Dec. 17 at Little Rock to receive comments on proposed interim revisions to the Arkansas Water Quality Standards and the proposed statewide water quality management plan (208 Plan). The hearing will begin at 1 p.m. in the state Game and Fish Commission auditorium, No. 2 Natural Resources Drive.

The proposed changes in the water quality standards, which will serve as temporary revisions until a more thorough review is conducted next year, involve special provisions for Coffee Creek in Ashley County, standards for intermittent or ephemeral streams and ditches, and discharge limits for certain toxic substances.

The proposed revisions would exempt Coffee Creek from all general and specific water quality standards except those necessary to prevent unreasonable interference with existing stream uses or interference with normal propagation of aquatic life. Included in the proposal are prohibitions against the discharge of materials which would create a nuisance or threat to public health; substances which would produce excessive odor and taste problems; excessive amounts of solids, floating materials or deposits of a persistant nature; and excessive amounts of toxic substances.

The interim exemptions for Coffee Creek are an attempt to temporarily deal with a problem involving the regulation of the discharge from the Georgia-Pacific paper mill at Crossett.

The federal Environmental Protection Agency previously proposed that Coffee Creek must meet the water quality standards for a Class B stream. The existing state water quality standards list the creek as a Class B stream, but also provide for an exemption from the Class B standard for dissolved oxygen.

Georgia-Pacific representatives contend the stream is classified wrongly, and was put in Class B only because there is no lower stream classification. (Currently, the standards provide only for stream classifications of AA, A and B.) Additionally, company officials contend the portion of Coffee Creek in question should be considered a legitimate part of the mill wastewater treatment system because of modifications to the stream over the past 40 years.

EPA officials have indicated they would accept the proposed interim revisions as a temporary solution to the situation. A long-term solution will be the development of a new Class C designation for streams such as Coffee Creek which have no

—more—

EXHIBIT B

practical use other than to carry industrial wastewater. The development of a new classification will be one of the areas addressed in the extensive review of the water quality standards next year.

The proposed interim revisions set more specific standards for acceptable water quality in intermittent or ephemeral streams (streams with little or no natural flow during some portions of the year) and drainage ditches.

The proposed language prohibits such streams and ditches from receiving material from manmade sources in such amounts which, after considering existing stream uses, would form objectionable deposits; create nuisances; produce objectionable color, taste, odor or lack of clarity; produce undesirable aquatic life or the dominance of nuisance species; cause injuries to humans, animals or plant life; or interfere with existing uses of downstream waters.

The proposal would not require treatment of wastewater effluent to a degree greater than secondary (mechanical and biological treatment, plus chlorination) unless necessary to protect existing uses in the receiving stream or downstream; to protect ground or surface waters; or to prevent a public health hazard.

The proposed revision would not require maintenance of a flow rate or treatment of effluent greater than secondary in order to create or maintain a stream use which would not exist except for the flow of the discharge itself.

The proposed addition of discharge limits for seven toxic substances establishes specific limits in place of existing general criteria.

Specific limits would be established for polychlorinated biphenyls (PCBs), which are used as insulating material for heavy duty electrical equipment such as transformers; benzidine, which is used in some dyes and for certain laboratory processes; and the pesticides aldrin/dieldrin, endrin, toxaphene, chlordane and DDT.

The proposed 208 Plan is the final version of a draft document which was the subject of a May 25 public hearing at Little Rock. A number of revisions have been made in the original proposal, after consideration of comments from the public and the EPA.

The proposed 208 Plan outlines Arkansas' water quality management planning efforts for the first year of a 20-year plan to achieve and maintain national water quality goals as set by federal law. The plan will be reviewed each year and revised as determined necessary.

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EXHIBIT B

THIS INITIAL 208 PLAN CONSTITUTES PHASE I OF THE 208 PLANNING PROCESS. AS MANY OF YOU ARE AWARE AN INITIAL PUBLIC HEARING WAS HELD ON THIS PLAN ON MAY 25, 1979. AT THAT TIME IT WAS NOTED THAT A FUTURE HEARING WOULD BE NECESSARY BECAUSE OF THE UNAVAILABILITY OF CERTAIN SUPPORTING DOCUMENTS WHICH LED TO SOME OF THE CONCLUSIONS IN THE PLAN. THIS INFORMATION HAS NOW BECOME AVAILABLE AND WAS PLACED IN DEPOSITORIES THROUGHOUT THE STATE FOR REVIEW.

ALSO CHANGES MADE TO RESPOND TO PUBLIC COMMENTS AT THE FIRST HEARING AS WELL AS TO ADDRESS EPA COMMENTS HAVE BEEN INCORPORATED INTO THE PLAN, WHICH WAS PLACED IN THE DEPOSITORIES NOVEMBER 16, 1979.

THE FIRST HEARING WAS HELD TO MEET CERTAIN REQUIREMENTS OF FEDERAL LAW AND REGULATIONS AND THE SUBMISSION WAS KNOWN TO BE INCOMPLETE. SINCE THAT TIME THE CHANGES INCORPORATED ARE INTENDED TO PROVIDE ENOUGH INFORMATION TO SATISFY THE CONDITIONS FOR INITIAL ACCEPTANCE OF THE PLAN.

CHAPTER VI OF THE PLAN CONTAINS A PROPOSED REVISION TO THE WATER QUALITY STANDARDS WHICH WAS WRITTEN BEFORE THE INTERIM WATER QUALITY REGULATIONS WHICH ARE THE SUBJECT OF A SEPARATE HEARING HERE TODAY WERE FORMULATED AND WHICH WERE PLACED IN THE DEPOSITORIES AT THE SAME TIME AS THE PLAN MATERIAL.

CHAPTER VI THEREFORE IS SUPERSEDED BY THE STANDARDS PROPOSED IN THE NEXT HEARING. AS WILL BE EXPLAINED IN THAT HEARING THESE INTERIM STANDARDS WILL BE SUBJECT TO EVEN FURTHER REVISIONS IN THE NEXT FEW WEEKS.

CONTINUED UPDATING AND IMPROVING OF THE PLAN IS CONTEMPLATED. A HEARING WAS HELD NOVEMBER 7, 1979, ON A WORK PLAN FOR UTILIZATION OF 1979 FUNDS. ANOTHER HEARING WILL BE HELD ON A FURTHER WORKPLAN IN THE EARLY PART OF 1980 FOR EXPENDITURE OF 1980 FUNDS.

IMPLEMENTATION OF NONPOINT SOURCE BEST MANAGEMENT PRACTICES AND CONTINUED ELIMINATION OF POINT SOURCE POLLUTION WILL FOLLOW THE ACCEPTANCE OF THIS INITIAL PLAN.

THE FUTURE INFORMATION DEVELOPED WILL PROVIDE FOR MORE COMPLETE KNOWLEDGE OF THE CAUSE-EFFECT RELATIONSHIP IN MANY INSTANCES AND CONSEQUENTLY MAY LEAD TO TECHNOLOGICAL ADVANCES THAT ARE NOT PRESENTLY UTILIZED.

AS FUTURE REVISIONS AND CHANGES ARE INCORPORATED THEY WILL BE SUBJECTED TO FURTHER PUBLIC HEARINGS SIMILAR TO THE ONE HERE TODAY.

THANK YOU FOR YOUR ATTENDANCE AND ANY COMMENTS WHICH YOU MAY WISH TO MAKE.

Attachment 4

THE WATER QUALITY STANDARDS WHICH ARE THE SUBJECT OF THIS HEARING ARE CONSIDERED BY THE DEPARTMENT TO BE INTERIM STANDARDS. IN FACT A MORE EXTENSIVE REVISION WHICH MORE DISTINCTLY DEFINES PROCEDURES AND USE CLASSIFICATIONS IS CURRENTLY PARTIALLY COMPLETED AND SHOULD BE READY FOR A FURTHER HEARING WITHIN THE NEXT FEW WEEKS. THESE STANDARDS ALSO DIFFER CONSIDERABLY FROM THE PROPOSED STANDARDS INCLUDED IN CHAPTER VI OF THE 208 PLAN WHICH WERE PROPOSED MUCH EARLIER THAN THIS CURRENT VERSION.

THE PURPOSE OF THESE INTERIM STANDARDS IS TO PROVIDE THE DEPARTMENT WITH A MECHANISM TO DEAL WITH CRITICAL PROBLEMS THAT REQUIRE IMMEDIATE ACTION IN ORDER TO MAINTAIN AN ORDERLY PROGRAM IN CONSTRUCTION GRANTS AND PERMITTING, TWO OF THE MORE IMPORTANT FUNCTIONS OF THE WATER DIVISION.

VERY BRIEFLY, THE PROPOSED CHANGES ENCOMPASS THREE ITEMS, AS FOLLOWS.

(1) ATTACHMENT 1 WHICH WOULD EXEMPT COFFEE CREEK, THE RECEIVING STREAM FOR GEORGIA-PACIFIC WASTEWATERS, FROM CERTAIN CRITERIA AS CURRENTLY DEFINED IN THE STANDARDS BECAUSE OF THE INTERMITTENT, EPHEMERAL AND MANMADE NATURE OF CERTAIN PORTIONS OF THE STREAM. IT WOULD PROVIDE FOR PROTECTION FROM NUISANCES, HEALTH HAZARDS, TASTE AND ODOR, SOLIDS, FLOATING MATERIALS AND DEPOSITS AND TOXIC MATERIALS IN QUANTITIES THAT WOULD BE TOXIC TO HUMAN, ANIMAL, PLANT OR AQUATIC LIFE OR WOULD CAUSE INTERFERENCE WITH NORMAL PROPAGATION OF AQUATIC LIFE. THE JUSTIFICATION FOR THIS CHANGE (ATTACHMENT II) IS BASED UPON THE CONTINGENT THAT COFFEE CREEK WAS MISCLASSIED IN THE ORIGINAL STANDARDS.

(2) ATTACHMENT III - SPECIFIC CRITERIA FOR SEVEN LISTED TOXIC MATERIALS. THIS IS INTENDED TO BE A START TOWARD SETTING LIMITS ON OTHER TOXIC MATERIALS AS BETTER INFORMATION AND TECHNOLOGY BECOMES AVAILABLE. THE LIMITS ARE SET ON DETECTION LIMITS THAT CAN BE ACCOMPLISHED BY THE CHEMISTRY LABORATORIES OF THE DEPARTMENT.

(3) ATTACHMENT IV - A STANDARD FOR INTERMITTENT AND EPHEMERAL STREAMS AS WELL AS DRAINAGE DITCHES WHICH WOULD PERMIT THE DEPARTMENT MORE FLEXIBILITY FOR SETTING EFFLUENT REQUIREMENTS NECESSARY TO PROTECT THESE STREAMS FOR EXISTING INSTREAM WATER USES AS WELL AS PROTECTION OF DOWNSTREAM WATER USES, PROTECTION OF SUBSURFACE WATERS AND TO PREVENT A PUBLIC HEALTH HAZARD.

THE ABOVE PROVISION SHOULD PROVIDE WATER QUALITY PROTECTION FOR EXISTING USES OF THE RECEIVING STREAM OR STREAMS YET PROVIDE FOR SEVERAL MILLION DOLLARS IN ECONMICS TO SOME OF THE MUNICIPALITIES WHICH ARE PRESENTLY FACED WITH EXTREMELY HIGH LEVELS OF TREATMENT UNDER EXISTING STANDARDS.

IT IS RECOGNIZED THAT A PROCEDURE FOR DEFINING AND EVALUATING THESE STREAMS MUST BE DEVELOPED AND THIS WILL BE A PART OF DEPARTMENT ACTIVITIES OVER THE NEXT FEW WEEKS.

THANK YOU FOR YOUR ATTENDANCE AND ANY REMARKS YOU MAY CARE TO MAKE.

Statement 5

Presentation of Georgia-Pacific Corporation
to the Commission on Pollution Control and Ecology
December 17, 1979, Public Hearing

My name is Johnny Carter, Environmental Control Supervisor for Georgia-Pacific Corporation at Crossett. We appreciate the opportunity to comment on the proposed changes to water quality criteria in Regulation No. 2.

First, I would like to comment on the proposed justification with the exception of Coffee Creek from those specific criteria applicable to Class B streams and all general criteria. It should be recognized that replacement criteria have been provided for in the justification document.

Allow me to refresh your memory and provide an historical background for Georgia-Pacific's comments: We first began using Coffee Creek (refer to drawing) in 1937 when the paper mill began operating in Crossett. Exhibit (1) in the copy of my statement is a reproduction of this drawing. For several years the Mossy Lake-Coffee Creek system provided adequate treatment. This was accomplished with the assistance of small dams on the lower edge of Mossy Lake which were installed by Georgia-Pacific. As the operation expanded, it became necessary to enlarge the effluent treatment system.

Our first major change came in 1956 with the addition of the R-1 basin (refer to drawing). When this retention and stabilization lagoon began filling with solids, it became apparent that a solids removal system was necessary. Consequently, two earthen settling basins were constructed adjacent to the Coffee Creek channel. They were successful in removing settleable solids ahead of the R-1 stabilization basin.

As further expansion and more stringent regulations came about, it was necessary to upgrade the system again. The next step was completed in 1970 with the addition of a 300-foot diameter primary clarifier and 15 50-hp

EXHIBIT B

aerators in the R-1 basin, thereby converting it to an aerated stabilization lagoon. Subsequently, more aeration was added up to the current quantity of 1,875 hp.

In support of the Department staff's justification for exception of Coffee Creek, I would like to present the following exhibits:

1. First, Exhibit (2) is a series of photographs of the dry stream bed of Coffee Creek taken where the original channel has been abandoned below R-1. These photographs demonstrate the intermittent nature of the stream.
2. Second, Exhibit (3) contains flow data for August, September and October of 1979 showing that:
   (a) August flow from R-1 was 47.4 MGD and flow from Mossy Lake was 48.0 MGD;
   (b) September flow from R-1 was 47.9 MGD and flow from Mossy Lake was 48.5 MGD;
   (c) October flow from R-1 was 46.5 MGD and flow from Mossy Lake was 45.6 MGD.

   Since there is no significant difference in the flows leaving R-1 and that entering the river, we submit there is support for the Department's finding that the flow of Coffee Creek, except for treated wastewater, is intermittent or ephemeral in nature.
3. Exhibit (4) shows that biochemical oxygen demand (BOD) levels leaving our aerated lagoon (R-1) have decreased each year for the last five years. The following are average concentrations of BOD for each year:

1975 - 76 ppm

1976 - 70 ppm

1977 - 47 ppm

1978 - 32 ppm

1979 - 26 ppm (first ten months)

4. In addition to these observations, we would like to call your attention to an error that exists on the graph of BOD levels in Coffee Creek which was attached to the State's proposed justification document. As you can see, the numbers used in preparing that graph were generally uniform and decreasing, with one very notable and obvious exception. The number reflecting "early 1976" should have been recorded as "greater than 63," but was instead interpreted by the programmer as "763." With that correction, this graph will clearly illustrate the improving water quality for the BOD criterion over the past five years. At this time, we would like to submit as Georgia-Pacific's Exhibit (5) those graphs which were attached to the State's proposed justification document as evidence of the improving water quality in Coffee Creek over the past five years, which in turn reflect the improved levels of treatment which are being achieved by Georgia-Pacific at Crossett.

5. Exhibit (6) contains an analysis of samples that were taken from three areas in the abandoned Coffee Creek channel and tested for dissolved oxygen. In all three places, the level of oxygen is 2.0 ppm or lower. This substantiates Georgia-Pacific's position that Coffee Creek was never of Class B quality and, therefore, could never achieve Class B standards.

6. In 1959, sodium analyses were made on water wells at three different locations surrounding the R-1 basin. Levels of sodium were found to be 83, 26, and 32 ppm. Wells in the same vicinity in 1979 show levels of 28, 17 and 20 ppm, respectively. Exhibit (7) indicates that groundwater contamination is not occurring on Georgia-Pacific's wastewater treatment system since the sodium levels are lower in all three areas. Sodium concentrations would increase if the effluent was percolating into the groundwater.

The EPA has recently directed that compliance with effluent limitations be measured at the point of discharge from R-1, taking into account normal deviations within the mixing zone. While Georgia-Pacific disagrees with this EPA "directive" and has made this one of the subjects of an adjudicatory hearing, it is submitted that the evidence supports the State's determination that Coffee Creek is intermittent in nature and therefore, the absence of a continuous flow in Coffee Creek, other than treated wastewater, precludes mixing in any area of the creek. It is further submitted that the mixing zone should be designated as some area contiguous to the mouth of Coffee Creek at its point of confluence with the Ouachita River.

At this time, I want to recognize three people from Crossett and Ashley County who are here today in support of Georgia-Pacific's effort to have the exception granted for Coffee Creek.

They are: Mr. Tom Streetman, President, Crossett Chamber of Commerce;
Mayor Vaskell Carter, City of Crossett;
Ashley County Judge Johnnie Bolin.

These gentlemen and the various citizens of Crossett and Ashley County they represent have been actively working with G-P for many months to help resolve the Coffee Creek issue.

Finally, we wish to comment that our review of Attachment IV of the Proposed Revisions to the Arkansas Water Quality Standards, Regulation No. 2, reveals a potential ambiguity between Subsection (c)(3)(A) and Subsection (c)(3)(C). The possible conflict between these provisions could be resolved by modifying (c)(3)(C) to read as follows:

> "Existing instream uses are (i) those beneficial and demonstrable uses of a stream which are currently being attained, which have been attained during the preceding five years, or (ii) those which are assumed under Subsection (c)(3)(A) above; and includes such uses as a raw water source for public, industrial, or agricultural water supplies; primary or secondary contact recreation; and protection and propagation of fish, shellfish and wildlife."

Mr. Chairman, I will be happy to answer any questions and Georgia-Pacific again thanks you for the opportunity to present this statement.

EXHIBIT I

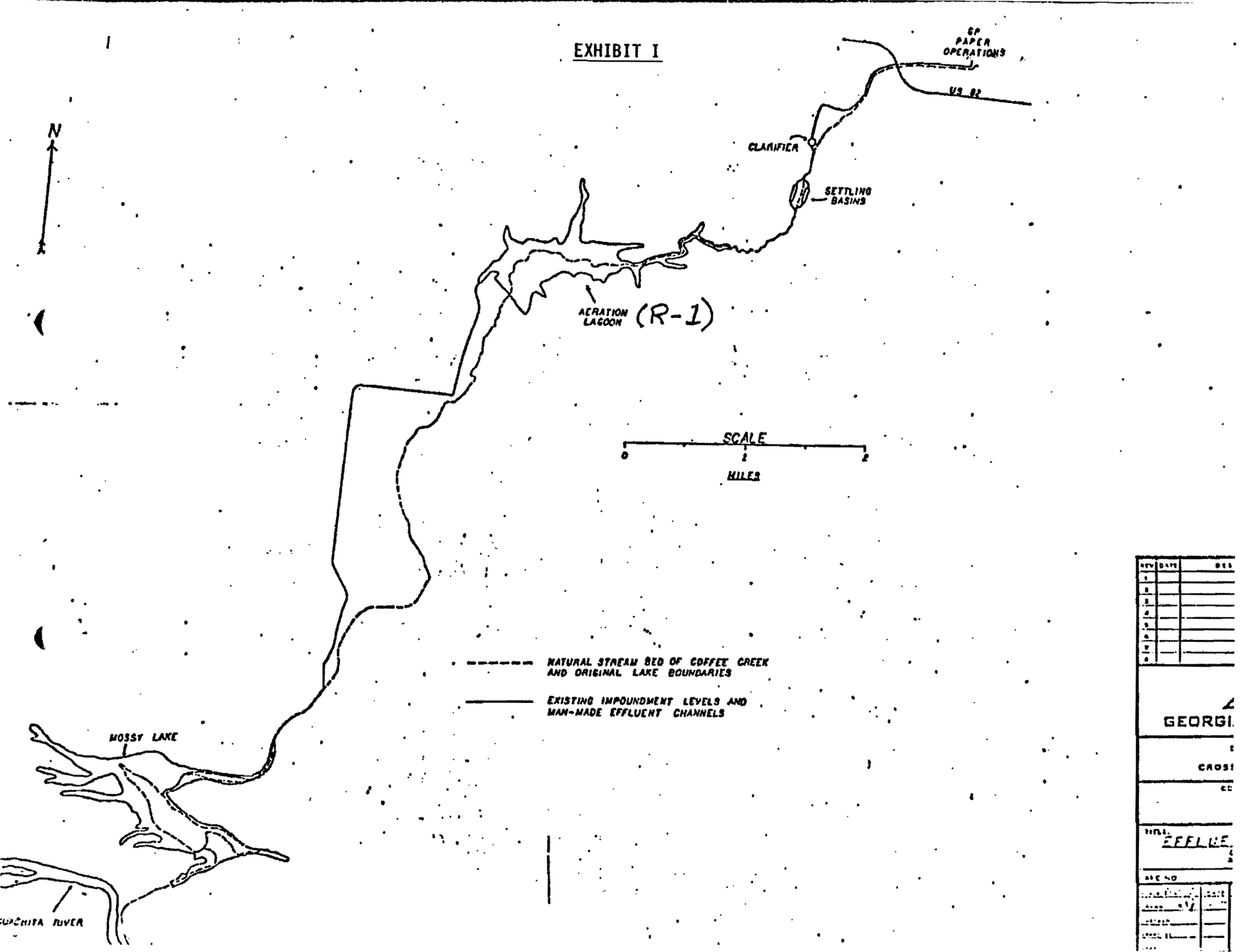


EXHIBIT B

FLOW DATA
G-P TREATMENT SYSTEM
(Million Gallons Daily)

	Discharge Point	
Date	R-1 Lagoon to Coffee Creek	Coffee Creek to Ouachita River
August, 1979	47.4 MGD	48.0 MGD
September, 1979	47.9 MGD	48.5 MGD
October, 1979	46.5 MGD	45.6 MGD

EXHIBIT (4)

ANNUAL AVERAGE CONCENTRATIONS OF
BOD DISCHARGED FROM R-1 LAGOON

Year	Annual Avg. BOD
1975	76 p.p.m.
1976	70 p.p.m.
1977	47 p.p.m.
1978	32 p.p.m.
1979	26 p.p.m.*

* First 10 months average

NOTE: Error on graph: "Slope of Regression Line." ADPC&E is in agreement that one figure was not plotted correctly.

1116APCC 050095 OUA11A 07364088 33 06 29.0 092 01 54.0
COFFEE CREEK NR CROSSETT ARK 05003 ARKANSAS
OUACHITA RIV. SW LOWER MISSISSIPPI

310 BOD 5 DAY MG/L

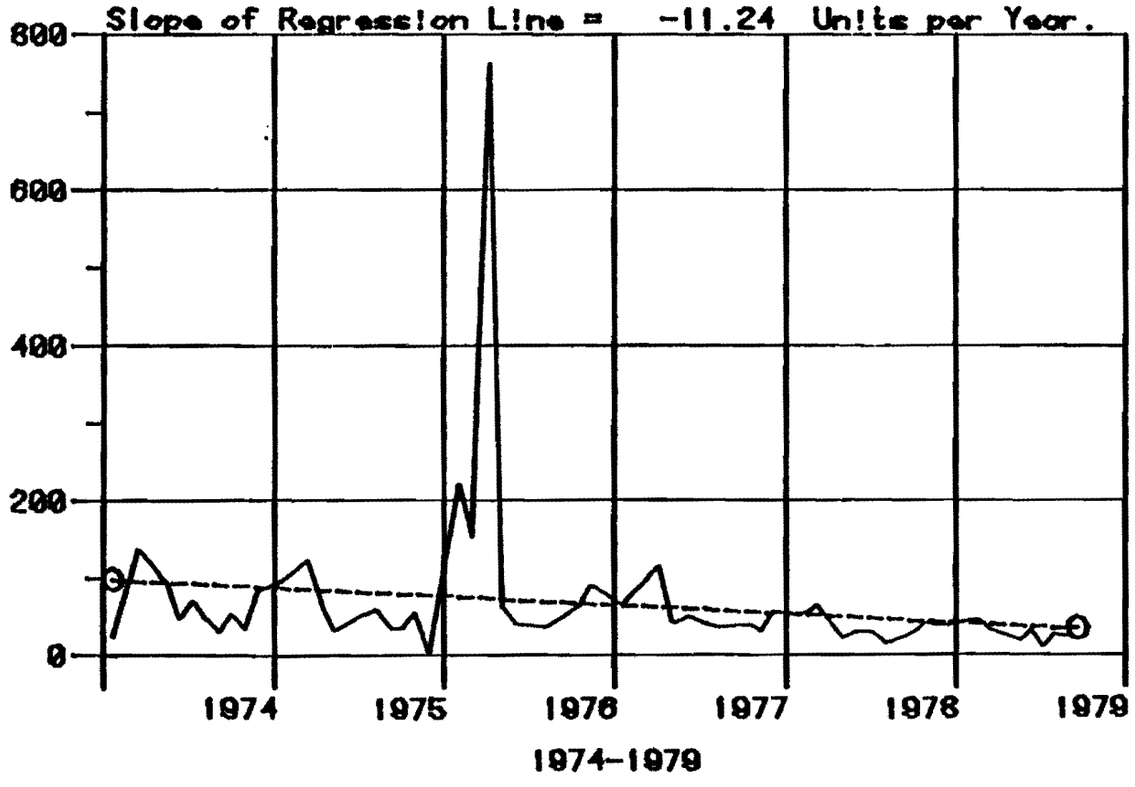
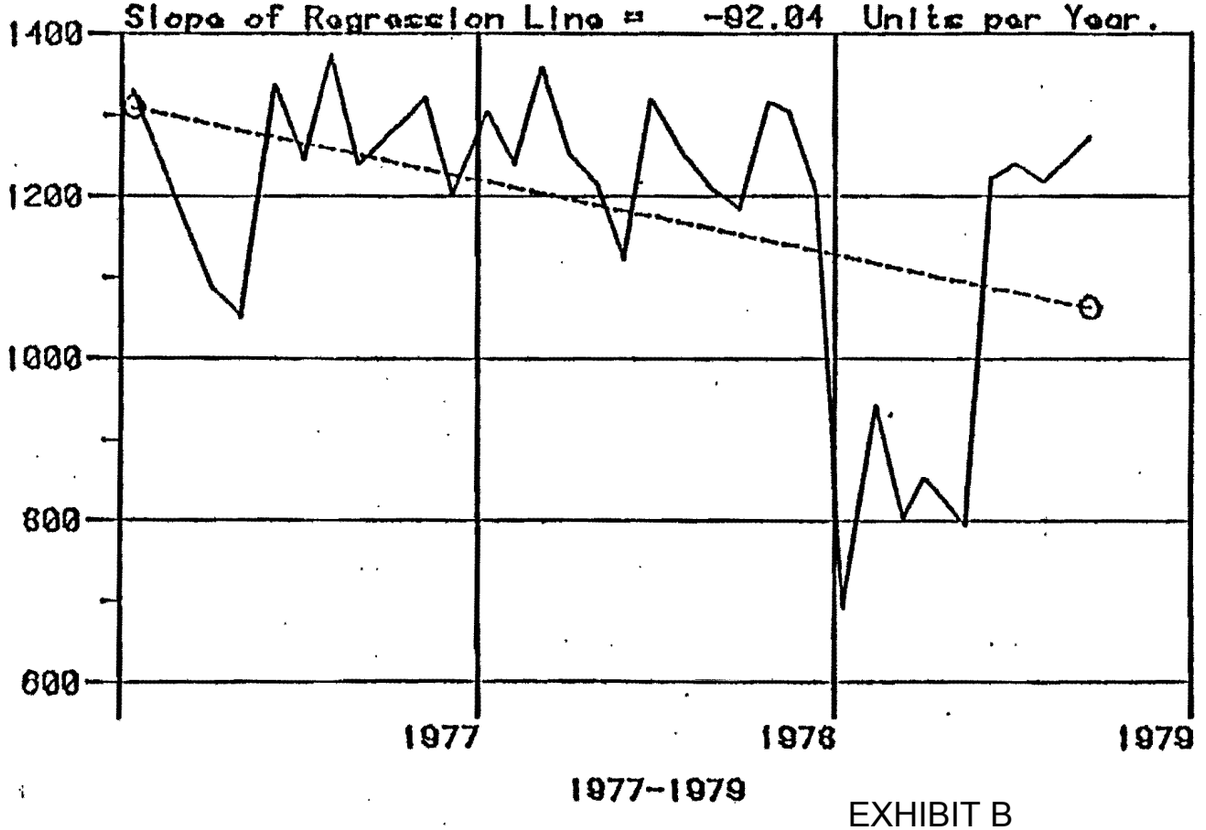


EXHIBIT B

EXHIBIT III

1116APCC 050095 OUA11A 07364088 33 06 29.0 092 01 54.0
COFFEE CREEK NR CROSSETT ARK 05003 ARKANSAS
OUACHITA RIV. SW LOWER MISSISSIPPI

70300 RESIDUE DISS-180 C MG/L



1977-1979

EXHIBIT B

1116APCC 050095 OUA11A 07364088 33 06 29.0 092 01 54.0
COFFEE CREEK NR CROSSETT ARK 05003 ARKANSAS
OUACHITA RIV. SW LOWER MISSISSIPPI

300 DO MG/L

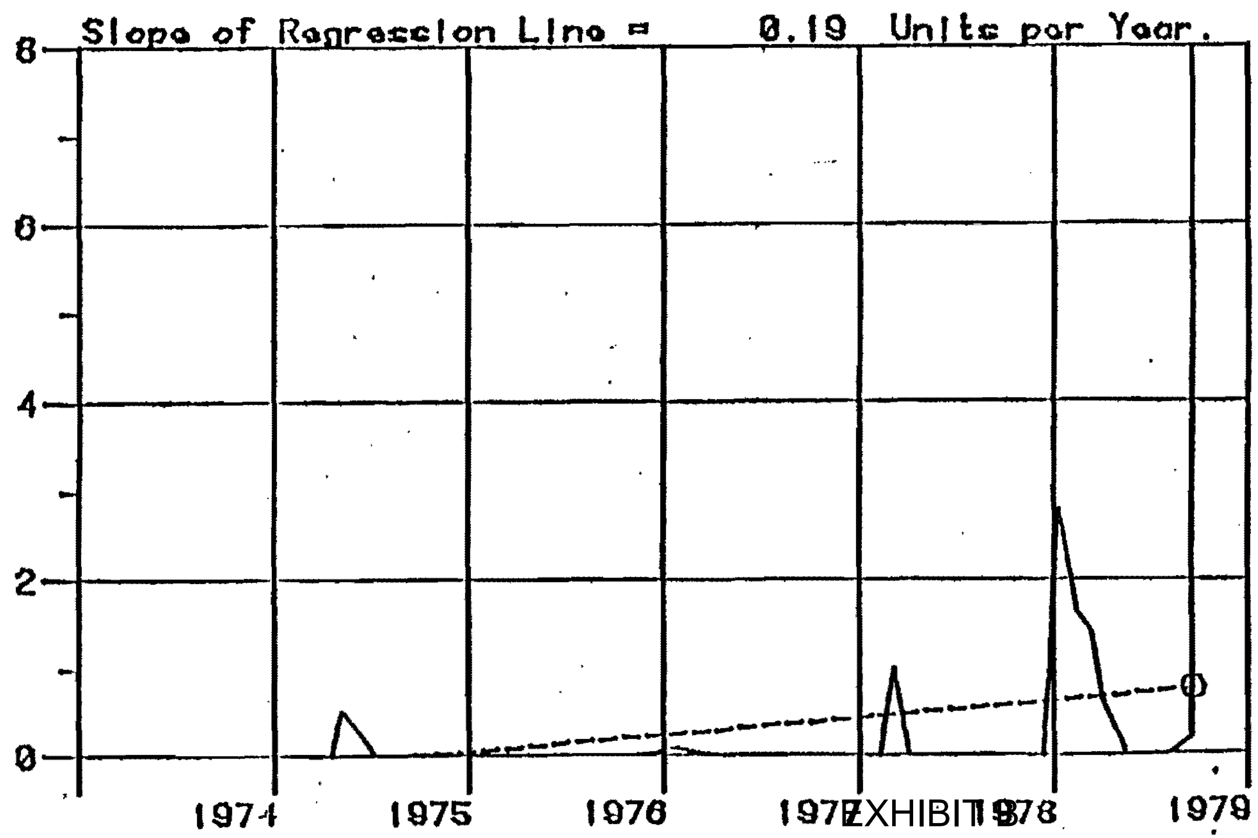
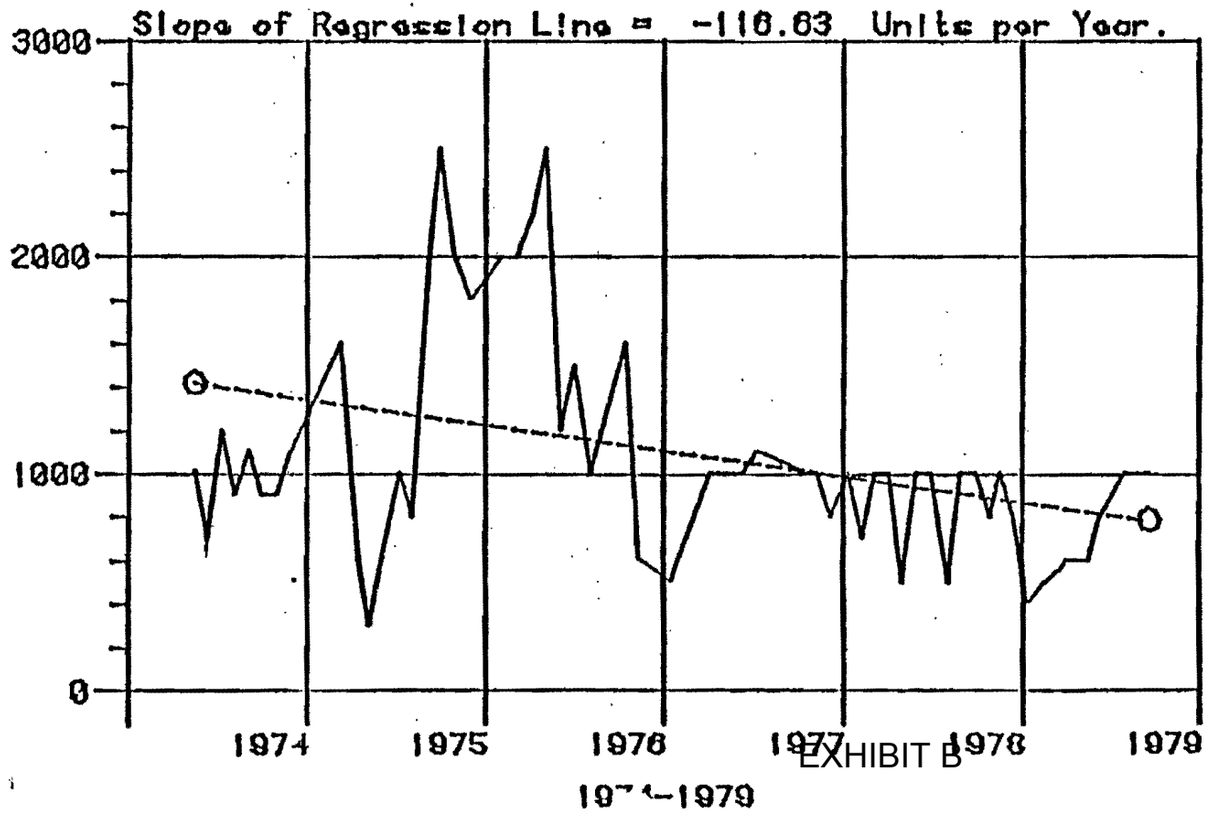


EXHIBIT 8

1? -1979

1116APCC 050095 OUA11A 07364088 33 06 29.0 092 01 54.0
COFFEE CREEK NR CROSSETT ARK 05003 ARKANSAS
OUACHITA RIV. SW LOWER MISSISSIPPI

80 COLOR PT-CO UNITS



1974-1979

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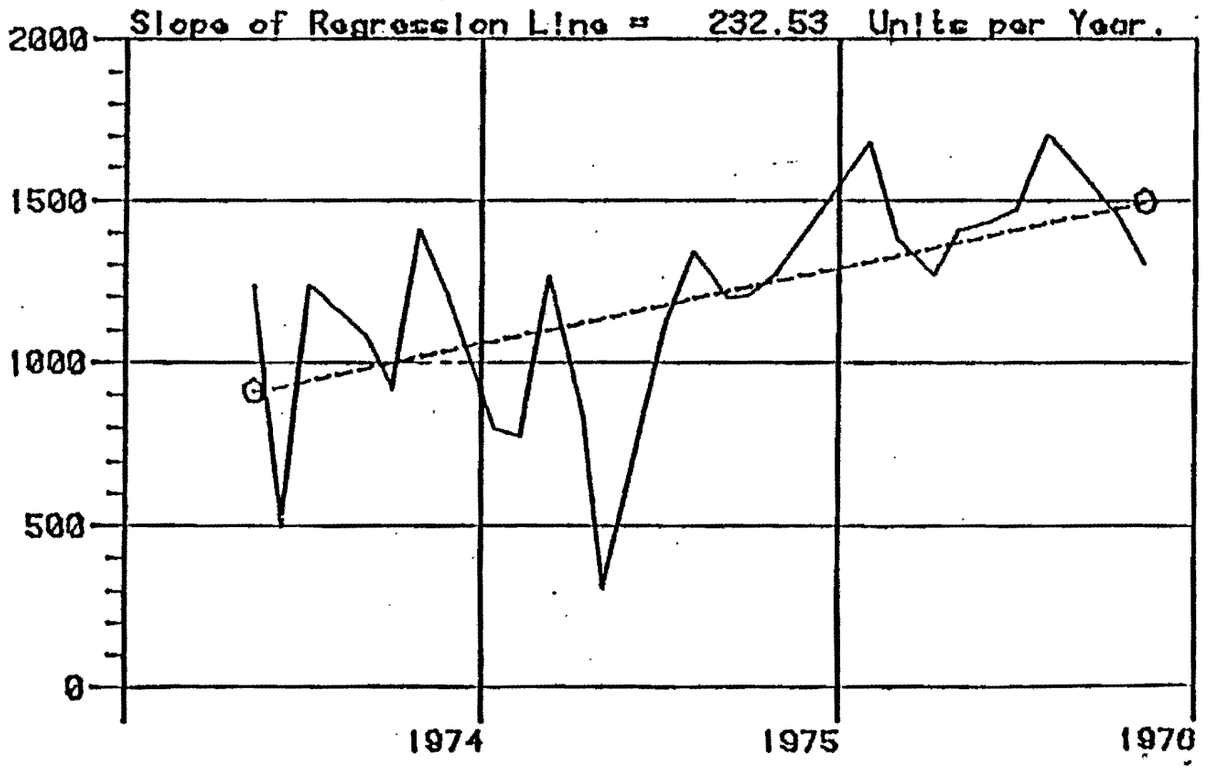
OUACHITA RIV. SW LOWER MISSISSIPPI

515 RESIDUE DISS-105 C MG/L



1974-1976 EXHIBIT B

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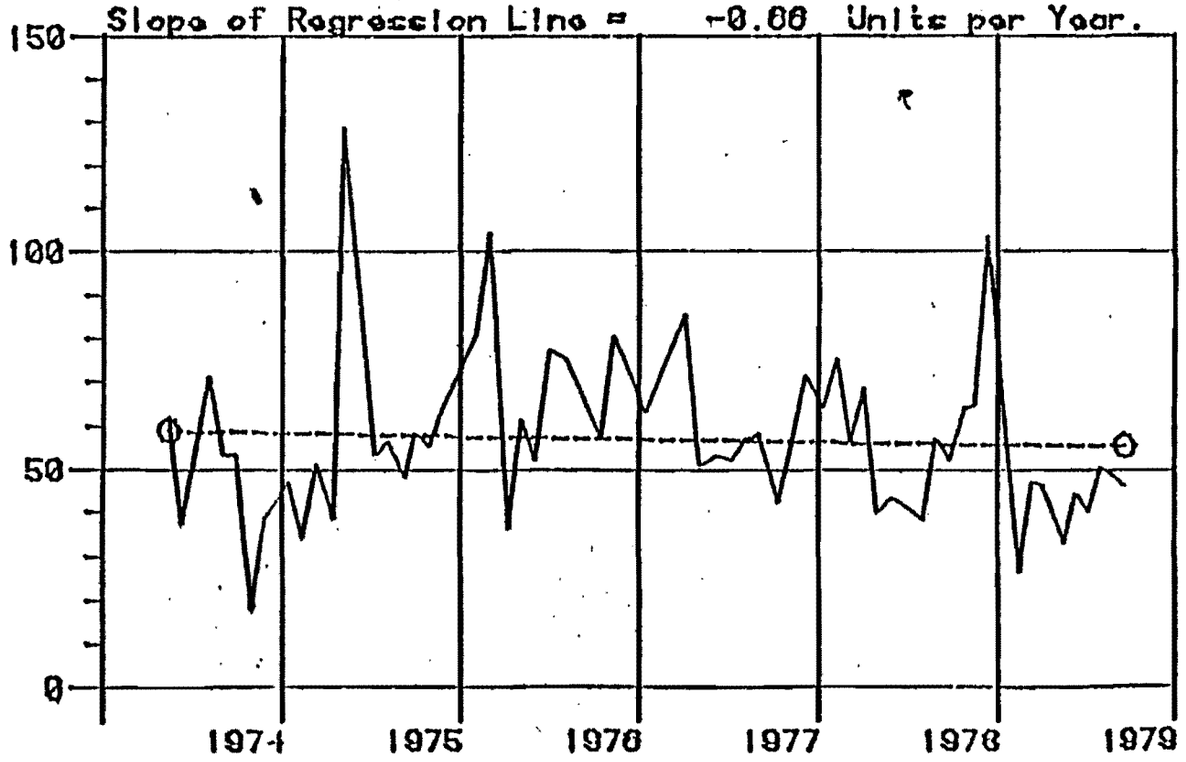
OUACHITA RIV. SW LOWER MISSISSIPPI

530 RESIDUE TOT NFLT MG/L



1974-1979 EXHIBIT B

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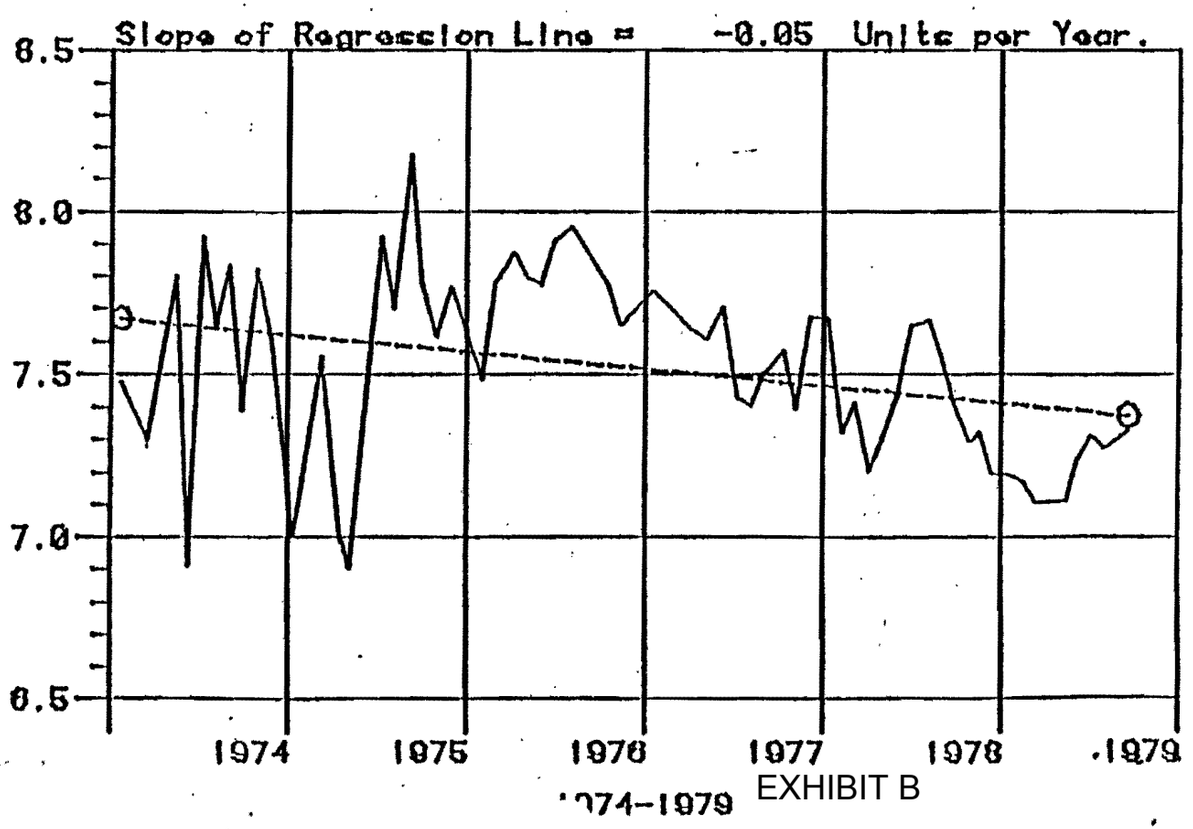
COFFEE CREEK NR CROSSETT ARK 05003 ARKANSAS
OUACHITA RIV. SW LOWER MISSISSIPPI

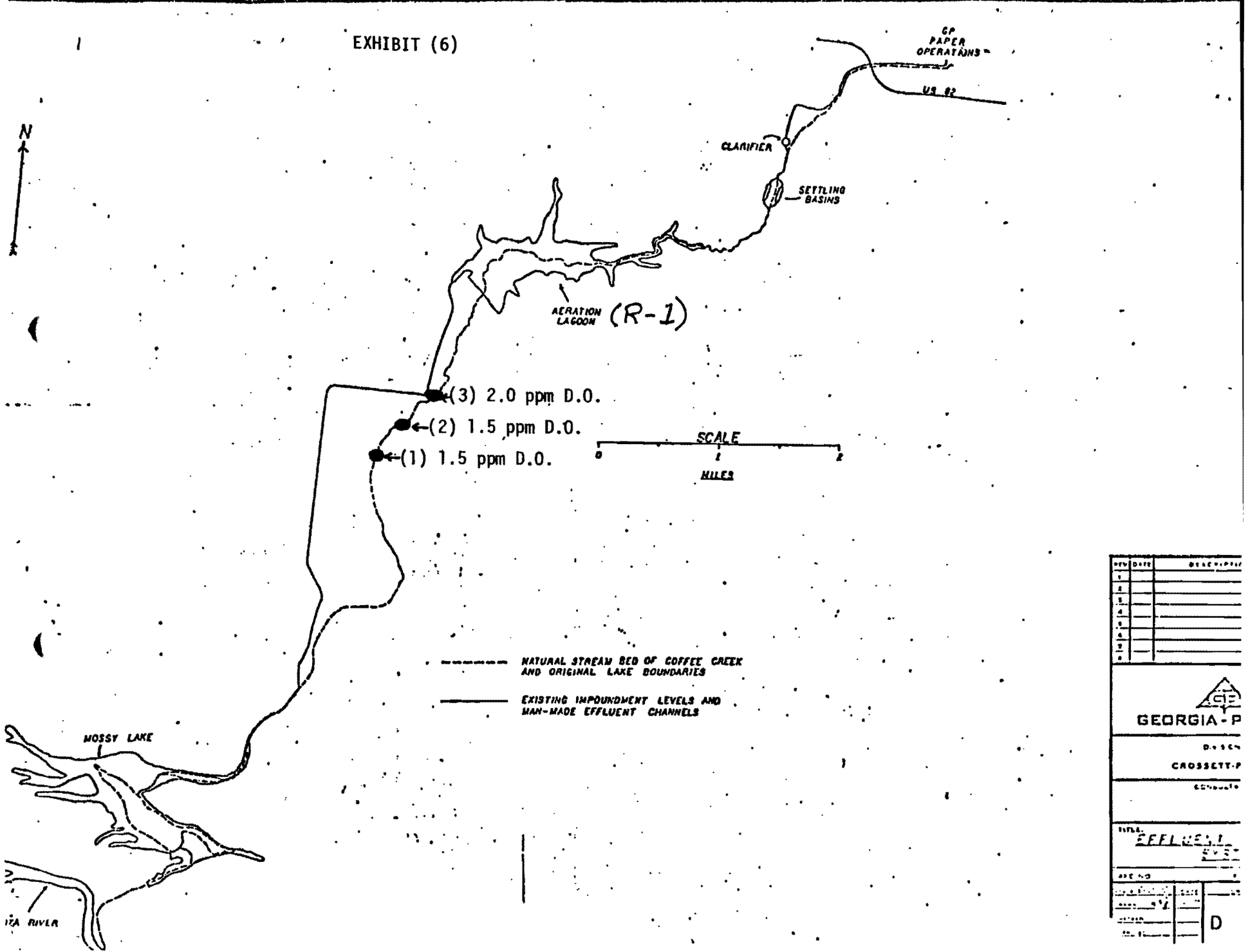
400 PH SU



1974-1979

EXHIBIT B

EXHIBIT (6)



GEORGIA-P

CROSSETT-P

EFFLUENT

D

EXHIBIT B

EXHIBIT (7)

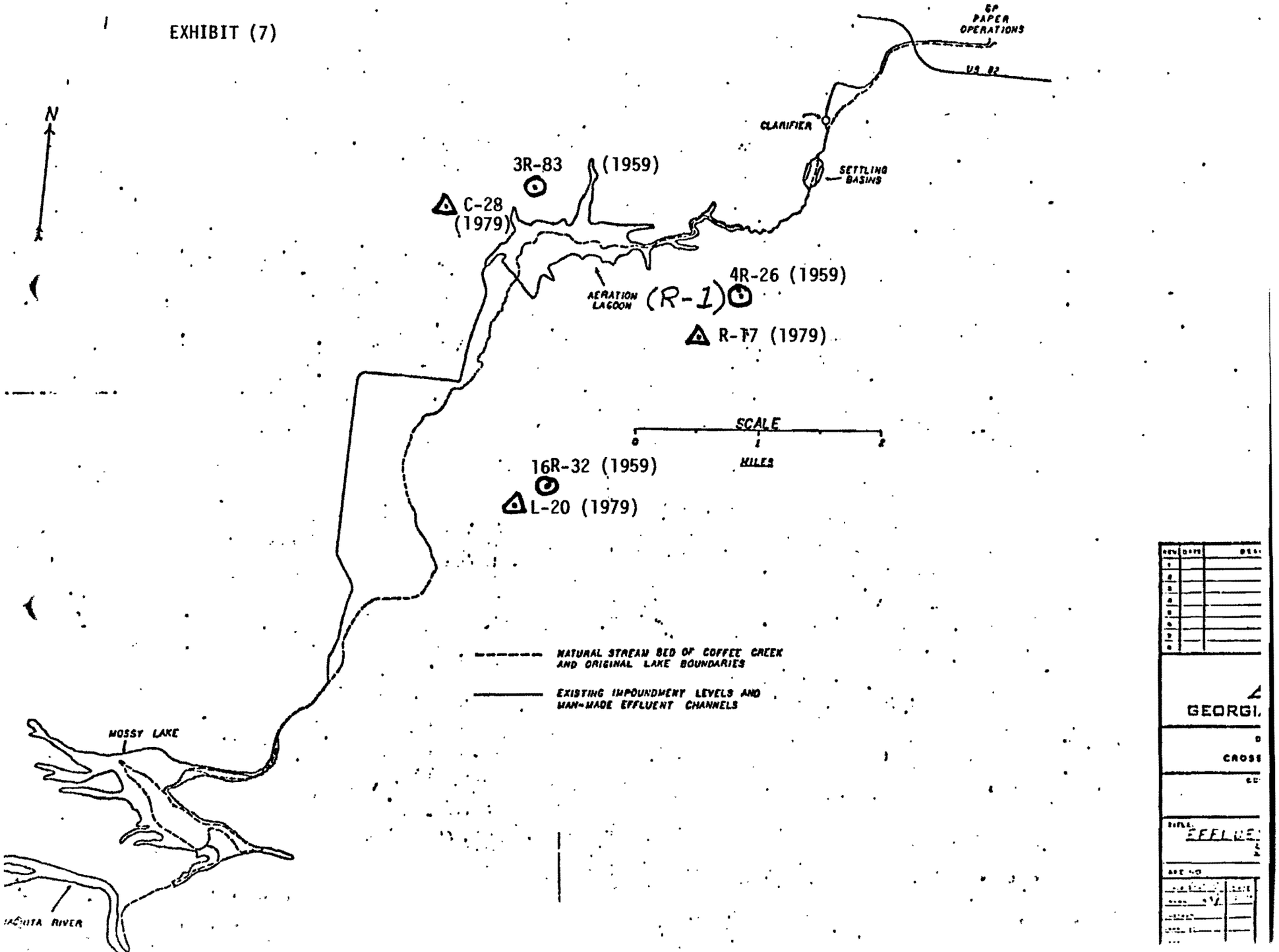


EXHIBIT B

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EXHIBIT B

EXHIBIT B

EXHIBIT B

Attachment 6

A STATEMENT ON WATER QUALITY MANAGEMENT PROGRAM
Before the
ARKANSAS COMMISSION ON POLLUTION CONTROL AND ECOLOGY
December 17, 1979
by the
UNION CARBIDE CORPORATION
as presented by
J. L. Powell

We have not had the time to review the entire State of Arkansas Water Quality Management Program in detail, so we are limiting our comments today to Chapter VI Water Quality Standards. We reserve the right to comment further on Chapter VI or on other portions of the Plan at a later date, if necessary.

(a) Toxic Substances, Section 5(k), Page 7, Chapter VI

The proposed revision states "The Commission will determine toxicity concentrations using literature values and/or bioassay techniques for the most sensitive species of indigenous aquatic life".

This appears to indicate that major and significant changes may be made in the Arkansas Water Quality Standards without the advantage of a hearing and public comments prior to implementation. We question whether this fulfills the requirements of the Arkansas Administrative Procedures Act. The requirement of a hearing and public comment must be spelled out in the Water Quality Standards themselves.

(b) Guidelines - Appendix 2, Chapter VI

One often hears the statement made that guidelines are only guidelines. Unfortunately, guidelines are too often used to formulate regulations regardless of how reliable the original guidelines were formulated. For example our NPDES Permit was issued in 1974 and Arkansas guidelines were used to formulate the maximum permissible concentrations of various components. Using the Red Book to formulate in-stream guidelines may be satisfactory in some cases, but using these guideline concentrations in turn to determine the maximum permissible concentrations in effluents discharged to sewers and streams is not a satisfactory procedure in our view. It fails to take into account the nature of the discharge and/or the nature of the receiving water. We suggest that the effluent guidelines be deleted from the Water Quality Management Program and effluent standards be determined by the Department on a case by case basis after due consideration of all factors.

EXHIBIT B

(c) Guideline Values for Maximum Permissible Heavy Metals to be Discharged to Sewer or Stream - Appendix 2, Chapter VI

The concentrations for the elements in this table are the same concentrations given for in-stream guidelines (with the exception of Mercury). It is noted in this table that when a tenfold dilution is available in the receiving water, the values given may be increased tenfold but in fact many of the elements are not increased at all. This would mean that fish and other aquatic organisms must be able to live in the effluent discharge itself. This is much too restricted for municipal and industrial discharges. A safety factor of between 20 and 100 has already applied to the LC 50 values for the most sensitive species of indigenous aquatic life.

This appears to be an arbitrary and capricious decision and must be supported by logical rationale or the guidelines are of no real value.

The maximum discharge value for Cadmium for example is given as .012 mg/1. This value is much too low and we would recommend the value of .10 mg/1 in this case. Further, we question the rationale of multiplying some of the concentrations by 10 to get the maximum limit and other values by only 1.

(d) In-stream Guidelines - Ammonia - Appendix 2, Chapter VI

For clarity, the limit for ammonia should be expressed as micrograms NH_3 (as N) per liter. Although the Quality Criteria for Water, 1976, or the Red Book is a bit ambiguous as to whether ammonia concentrations should be expressed as NH_3 or as N, the source data from Thurston, et al (1974) employed values as N.

The following EPA document also shows the same numbers all expressed as N rather than NH_3. Ammonia Toxicity by Wm. T. Willingham, Control Technology Branch, Water Division, U. S. EPA Region VIII, February 1976. Refer to the abstract, the introduction and Table III on Page 9.

Further, the values given in Tables 2 and 3 on Pages 10 and 11 of the Red Book are actually mg N/1 based on textbook equilibrium data.

(e) Guidelines for Maximum In-stream Concentrations - Appendix 2, Chapter VI

The in-stream guideline for ammonia of .02 mg N/1 is no longer the accepted values for all waters based on research work completed since the publication of the Red Book. Based on this new work and the regulations issued in other states such as Colorado and Missouri, we suggest the following guideline values be used

based on the type of fishery of the receiving water.

Un-ionized Ammonia (ug N/l)	Fishery
20 *	Trout or cold water
100 *	Small Mouth Bass or warm water

* Temporary - may be adjusted based on new information.

Site specific data can often be higher than these values and should such data indicate that higher values are acceptable they will be permitted.

(f) Guidelines - Appendix 2, Chapter VI

Guidelines and concentrations for both in-stream and effluent discharge concentrations should be specified as soluble concentrations, since these are the values that actually effect the toxicity to aquatic biota as expressed in the Red Book.

5-25-79
mwd

Attachment 7

CITY OF DECATUR

DECATUR, ARKANSAS

December 14, 1979

Arkansas Commission of Pollution
Control and Ecology
8001 National Drive
Little Rock, Arkansas 72209

Re: "Arkansas Department of Pollution Control and Ecology, Proposed Revisions, Arkansas Water Quality Standards, Regulation No. 2" dated November 15, 1979; subject of public hearing at 1:00 p.m., December 17, 1979

Gentlemen:

We support Attachment IV to the referenced publication with the following exceptions:

1. Regarding section (c) (1) (C). We believe an unacceptable health risk is involved in tasting water from drainage ditches or intermittent stream basins where at times the flow is comprised solely of a treated wastewater effluent. Therefore, we believe the word "taste" should be deleted.

2. Regarding section (c) (1) (D). We believe this to be redundant and tending toward causing confusion rather than aiding in solution of problems. Therefore, we believe sub-section (D) should be deleted.

3. Regarding section (c) (3) (D). We believe this sub-section is redundant and should be deleted.

EXHIBIT B

We are appreciative of the effort that has gone into the preparation of the proposed revisions. At issue is a very complex problem of regulation.

Unnecessary restriction has potentially profound adverse economic impact ramifications for much of the state.

We urge deliberation and flexability in arriving at desirable controls.

Sincerly,
CITY OF DECATUR

Dennis Massey
Mayor

DCM/la

EXHIBIT B

Attachment 8

ENGINEERS

LEMUEL H. TULL, P.E.
BOB H. CRAFTON, P.E.
R. GENE REECE, P.E.
TOM HOPPER, P.E.
EVERETT BALK, P.E.

CRAFTON, TULL & ASSOCIATES, INC.

P. O. DRAWER 549 ROGERS, ARKANSAS 72756 (501) 636-4838

December 17, 1979

Arkansas Commission on Pollution
Control and Ecology
8001 National Drive
Little Rock, Arkansas 72209

Re: Proposed revisions to Regulation No. 2, Arkansas Water Quality Standards; public hearing at 1:00 p.m. on December 17, 1979

Dear Mr. Brooks and Commission members:

The proposed revisions place first and foremost considerations which under some circumstances are largely aesthetic. An implied secondary significance is assigned to the protection of people from injury.

We concur that aesthetic considerations are important and desirable to the extent to which they can be afforded.

We totally support the effort to improve Regulation No. 2, Section 4(c). We are convinced that arriving at workable controls involves a certain amount of trial and error. Further refinement may be necessary and should be a part of the process of regulatory development.

At this time, we support the proposed Section 4(c) revisions with the following exceptions:

1. In (c) (1), we believe that "substances or materials" adequately defines the problem source and that the following words should be deleted: "including floating debris, oil, scum and other matter".

2. In (c) (1) (C), we believe the word "taste" should be deleted since it is unreasonable to expect that people would taste drainage water or water in an intermittent stream basin which is comprised solely or substantially of a treated wastewater effluent.

3. We believe (c) (1) (D) is an unnecessary complication, that such concern is adequately accomodated otherwise, and, therefore, should be deleted.

EXHIBIT B

4. We believe that (c) (3) (D) will prove to be contradictory to (c) (2) and in practice, set a standard of its own, as well as result in substantial confusion placing an unecessary burden on the Commission, on ADPCE staff, and on dischargers to these basins. Therefore, we believe (c) (3) (D) should be deleted.

We will be pleased to elaborate further should that become necessary.

Thank you.

Sincerely,

R.E. (Gene) Reece, P.E.
of CRAFTON, TULL & ASSOCIATES, INC.

RER:ba

EXHIBIT B

Attachment 9

STATEMENT TO
ARKANSAS COMMISSION ON POLLUTION CONTROL & ECOLOGY
PERTAINING TO THE PROPOSED REVISSIONS TO ARKANSAS
WATER QUALITY STANDARDS, REGULATION NUMBER 2------
DECEMBER 17, 1979

My name is Bob Bogard, I am Executive Director of the Arkansas Federation of Water & Air Users, Incorporated, an industrial environmental association. We are grateful to you for this opportunity to comment on the proposed revisions Arkansas Water Quality Standards, Regulation Number 2. The Federation of Water and Air Users is a private, non-profit membership organization, dedicated to efficient management of our natural resources and protection of our environment. Our membership is composed primarily of industries that have operations in Arkansas and which hold one or more environmental permits from the Department of Pollution Control and Ecology or the Federal Environmnetal Protection Agency or both. Current membership numbers more than 140.

The Water Quality Committee of the Federation has reviewed the proposed revisions to the Water Quality Standards, Regulation

EXHIBIT B

NUMBER 2. THE FEDERATION WHOLEHEARTLY SUPPORTS THE REVISIONS AND STRONGLY URGES THE COMMISSION TO ADOPT THEM.

WE BELIEVE THE REVISIONS OFFER A REALISTIC APPROACH AND WILL PRESERVE THE STATES' WATER QUALITY WHILE AT THE SAME TIME PROVIDING THE FLEXIBILITY NEEDED BY THE REGULATORY BODY TO ALLOW FOR CONTINUED ECONOMIC AND INDUSTRIAL GROWTH THAT IS COMPATIBLE WITH ENVIRONMENT PROTECTION. THE PROPOSED JUSTIFICATION FOR THE EXCEPTION TO COFFEE CREEK SPEAKS FOR ITSELF. THE EXCEPTION IS DULY JUSTIFIED AND LONG OVER DUE. THE INTERMITTENT STREAM POLICY IS SOMETHING THAT THE STATE HAS NEEDED FOR A LONG TIME.

THE FEDERATION OF WATER AND AIR USERS WISHES TO COMMEND THE STAFF OF THE DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY, FOR FORGING AHEAD WITH THESE REVISIONS TO THE WATER QUALITY STANDARDS.

WE APPRECIATE THIS OPPORTUNITY TO COMMENT ON THE PROPOSED REVISIONS TO THE WATER QUALTIY STANDARDS.

THANK YOU